Hacettepe University
Department of Information Management

European Conference on Information Literacy (ECIL)

Istanbul, Turkey

22-25 October 2013

Editors: S. Kurbanoğlu, E. Grassian, D. Mizrachi, R. Catts, S. Akça, Sonja Špiranec

Abstracts

European Conference on Information Literacy (ECIL)

October 22-25, 2013, Istanbul, Turkey

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Foreword

There are times in history when a fortuitous confluence of several key events virtually leapfrogs mankind and civilization forward dramatically and rapidly in a far more positive and purposeful direction than is normally the case. One such fortuitous confluence began at the twilight of the 20th Century and the dawning of the 21st Century.

It was the incredible explosion of information and communications technologies occurring at the same time that theorists and practitioners were evolving a new paradigm centered on the idea that information, like air and water, should come to be regarded as a strategic resource essential to the enlightened advancement of the human race and all societies.

We have often been reminded that until the 19th century we were essentially a bow and arrow society dependent on natural resources for our survival.

Then we became an agrarian society, and next an industrial society. Immediately following World War II we began the transition to the first stage of an Information Society.

Quickly it was realized that knowledge itself was becoming the most crucial resource and the World Summit on the Information Society meetings held in 2003 and 2005 crystallized a global rather than fragmented focus on this phenomenon.

The scientific and technological breakthroughs which led to the first information search engines, combined with the microchip and other complementary and symbiotic computer and networking advances, such as the Internet and mobile phones, and the transition from analog to digital mediums hurled us into the second stage of the Global Information Society, where we find ourselves now.

At the same time, theorists and practitioners were evolving new theories and best practices such as expert systems, knowledge management, lifelong learning and information literacy. Which brings us to the present context.

Learning to learn, critical thinking and related self-empowering ideas are dependent on a free, open, continuous and robust exchange of ideas. So when I heard that leading world library, media and information professionals were planning a European Conference on Information Literacy (ECIL) to be held in one of the principal intercontinental crossroads cities of the world, Istanbul Turkey, I became very excited.

Here would be a unique opportunity to provide professionals with a very warm and very hospitable venue at which they could, first hand, report on their work, network together, make new friendships and share ideas.

The conference program which has been prepared and the individual invited papers which have been submitted are of the very highest quality, relevance and timeliness of any that I have ever witnessed and the conference organizers and committees deserve our highest accolades!

The magnificent ECIL program reflects great credit not only on the two co-organizers, Professors Serap Kurbanoğlu of Turkey and Sonja Špiranec of Croatia, but on Turkey, on Istanbul and on the world professional library, media and information communities.

We also note with great pleasure that the conference is under the patronage of UNESCO, which has been a very strong and effective international advocate of information literacy. And we have been told that a second conference will be held in 2014 in beautiful Dubrovnik.

In this volume you can read the abstracts of an extraordinary collection of peer-reviewed papers. I urge you to browse this gold mine filled with nuggets of wisdom!

Additionally, the best possible good fortune that could befall you is if you can attend the ECIL itself October 22-25, 2013 in Istanbul!

Dr. Forest Woody Horton, Jr.

Preface

We had a dream, and it came true!

It all started in 2008 when UNESCO launched Training-the-Trainers (TTT) in Information Literacy Workshops project, coordinated by Woody Horton and Albert Boekhorst. The TTT in Information Literacy regional workshops project, in my opinion, has been one of the best Information Literacy (IL) initiatives, thanks to Woody, Albert and UNESCO.

I was invited to host one of the regional workshops. I organized the workshop in Ankara at my University (Hacettepe University). Fifty people attended the workshop from 17 countries. Among the participants, Croatia was represented by Sonja Špiranec from the University of Zagreb. From that point on, Sonja and I came together on a number of different occasions.

During an Erasmus Intensive Program (IP) which took place in September 2011 at Zagreb University, the idea was born of organizing a truely international Information Literacy conference with a strong research focus, to be held in Europe. We started working on it immediately. Woody was the first person to share our initial thoughts. His excitement and support encouraged us. We allowed ourselves two years time to realize our plans. The first year was mainly for building up a website, finding ourselves a logo (thanks to Necip Erol Olcay, designer of our logo, whom used an owl -- a symbol of wisdom – to create the ECIL logo), promoting the conference and establishing committees. Conference committees include IL experts representing more than 60 countries. We would like to thank, and acknowledge the hard work of the members of the Standing and Programme Committees who invested their time generously to make this event happen.

The European Conference on Information Literacy (ECIL) is co-organized by the Department of Information Management of Hacettepe University, Turkey and the Department of Information and Communication Sciences of Zagreb University, Croatia. Information literacy, media literacy and lifelong learning being the main theme, ECIL aimed to bring together researchers, information professionals, media specialists, educators, policymakers and all related parties from around the world to exchange knowledge and experience and discuss current issues and recent developments. 396 proposals were submitted to the Conference. All submissions were subjected to a double-blind review process and 235 were accepted. This book consists of a total of 251 contributions (1 commentary, 2 keynotes, 11 invited papers, 93 papers, 6 doctoral papers, 47 best practices, 41 PechaKuchas, 31 posters, 12 workshops, 5 panels, and 2 early statements from the 1970s regarding the concept of "information literacy"). Contributions came from 59 different countries (Albania, Australia, Austria, Bangladesh, Belgium, Botswana, Brazil, Bulgaria, Canada, China, Colombia, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, India, Iran, Ireland, Italy, Jamaica, Japan, Lithuania, Malaysia, Malta, Mexico, The Netherlands, New Zealand, Nigeria, Norway, Pakistan, Philippines, Poland, Portugal, Puerto Rico, Qatar, Romania, Russia, Saudi Arabia, Serbia, Singapore, Slovakia, Slovenia, South Africa, Spain, Sweden, Switzerland, Taiwan, Tunisia, Turkey, UK, Ukraine, United Arab Emirates, USA) and address a number of issues dealing with, among others, theoretical framework, policies and strategies, the digital divide, disadvantaged groups, IL for the workplace, teaching techniques, and assessment. Early statements include full-texts of Paul G. Zurkowski's report from 1974 and Lee G. Burchinal's speech from 1976.

Starting with our own organizations, Hacettepe University and the University of Zagreb, we are grateful to many organizations for their support. Our special thanks go to UNESCO and IFLA, two major organizations which have contributed tremendously to the development of IL. Irmgarda Kasinskaite-Buddeberg from the Knowledge Societies Division of UNESCO, Maria Carme Torras Calvo from the Governing Body of IFLA deserve special thanks for their support and guidance.

We would like to take this opportunity to thank conference keynote speakers Paul G. Zurkowski (who coined the term "information literacy") and Christine Susan Bruce; opening speakers Indrajit Banerjee from UNESCO and Maria Carme Torras Calvo from IFLA; invited speakers (Carla Basili, Albert Boekhorst, John Crawford, Natalia Gendina, Bill Johnston, Evgeny Kuzmin, Jesus Lau, Annemaree Lloyd, Maria Carme Torras-Calve, Sirje Virkus, Li Wang, Sheila Webber); panel conveners; workshop presenters; authors and presenters of papers, best practices, PechaKuchas, posters; and session chairs. We would like to thank Paul G. Zurkowski and Lee G. Burchinal for allowing us to publish their early works, and also Andrew Whitworth for sharing with us Burchinal's speech in electronic form, as well as his introduction to this speech. Our editorial team should also be acknowledged here. Special thanks to Esther Grassian,

Diane Mizrachi and Ralph Catts for their hard work and valuable editorial contributions. We also like to thank our proofreaders Yaşar Tonta and Umut Al.

Last but not least we would like to thank the Local Organizing Committee --Co-chair Serap Özyurt deserves special thanks for her extraordinary talent and support in bringing in sponsors-- our sponsors, and the Organizing Office, ARBER.

Thank you all for making a dream come true!

Serap Kurbanoğlu

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Ralph Catts
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Introductory Remarks

I commend the organisers and participants from such a wide range of countries for the quality of the papers which indicate the progress made in information literacy practice and research since the concept was introduced forty years ago. The paper from Wuhan University by Xiaojuan Zhang exemplifies the progress occurring in many countries. I visited Wuhan University in 1976 when the latest publications available in English in the library were from 1949, just before the victory over the nationalist forces. English language students were struggling with very basic issues of pronunciation and simple sentence structures. The progress in Wuhan and many other centres toward participation in the global knowledge society is illustrated by this contribution.

It was in the seventies when the notion of information literacy was first gaining attention, and it is wonderful to find some of the true pioneers are contributing to this conference. It was twenty years later before the development of competency standards and the stimulus that this gave to curriculum initiatives. Systematic evaluation of programmes and research into the information literacy construct has mushroomed in recent years as is evident by the number of papers included in this collection which draw on theoretical foundations and are evidenced-based. The field of information literacy is maturing, but also changing with merging technologies.

The wide use of English as a language of academic discourse has also emerged in the past twenty years. When I worked at OECD in the seventies, French was the dominant language in conferences, but now even native French speaking academics sometimes publish in English. For at least 1500 years Latin was the common language of diplomacy and academic discourse in the western world, and then French became popular. With globalisation English has swept the field across other great language traditions. I wonder how long this will be the case given the rise to economic dominance of China, India, South America, and in the future possibly Africa. I suspect that English may remain with us for a long time because it is the dominant language of the internet. A common language brings advantages for international communication, but it also brings cultural influences. The nuances that can be conveyed in other languages are not always easily translated, and even the term 'information literacy' does not translate easily into many other languages. We therefore need to approach our inter-cultural communications in this conference with care. Even within those cultures which use a form of English as their first language, there are subtle differences in meaning which I have become aware of as an expatriate Australian living in the UK. In addition, all of us need to be alert to the challenge that many will face in participating when English is not their first language. We will all need to ensure that we both articulate with care, listen with ears tuned to the diverse accents which we will hear, and allow time for colleagues to formulate their thoughts and questions.

A feature to celebrate in this collection of abstracts is the number of papers co-authored by emerging and established researchers, and especially those which involve international collaboration. I commend also the larger scale collaborations between British researchers and practitioners evident in papers by Goldstein et al and by Graham et al and commend their call for greater international collaboration.

As UNESCO has recognised, the merging media technologies have brought considerable synergy between the fields of information literacy and media literacy. Whether we can yet say that there is a single construct called Media Information Literacy is a matter for debate, but I think that we need to deny the notion that there are two competing paradigms, because in the wider literature in higher adult and continuing education both media and Information literacy are scarcely discussed at all, and media specialists and information scientists need to work together across the two disciplines to heighten awareness of the importance of MIL.

Summary of Abstracts

You may find it helpful to classify the work and to focus on areas of particular interest or need. One approach could be to distinguish evidenced-based research from perception based claims for the efficacy of information literacy in education and for business and daily life. There are many papers that report enthusiastically the achievements of dedicated librarians with or without the input of faculty, but for which the claim of utility is based on anecdote or personal reflection. While such sources of information can be useful for reflective practice, they are singularly unconvincing when presented to managers in workplaces or in higher education, for whom the bottom line is driven by return on funds invested. For those of you who have presented your work in this manner, I commend the

workshop offered by Szarina Abdullah for consideration. Fortunately there are more papers than I have seen at previous Information Literacy conferences that are both grounded in theory and provide qualitative or quantitative data to support claims.

I am also delighted to find that information literacy is being linked with sociological and psychological theories as well as curriculum theory to provide a broader framework in which to examine the phenomenon. Those who have described practical interventions may find that papers that make these linkages provide both a secure framework for systematic research, and a credible base from which to argue the case for policy support for information literacy.

Speaking of policy, it is refreshing also to find papers that tackle the contested domain of priorities in educational expenditure and address the debate about the role of information literacy in both higher education and in business. The presenters come from countries at various stages of development and for many there are discrepancies in access to ICT within countries. Major constraints to ICT use include absence of electricity or power shortages, unreliable access to the internet, high costs of internet access, and limited institutional support. The last of these factors may be familiar to academic staff in many if not all institutions, but it is important to remember that in some countries there are severe challenges to engagement in the global knowledge society.

The bulk of the presentations in this conference are concerned with Information Literacy within the context of higher education. The predominant area of interest seems to be with professional education including the law and medical education, which is interesting given the culture in medicine of learning via mentoring where information for senior students is normally sourced directly from specialists. An area for further research might be the ways in which naïve first year students become acculturated into the practices of their various professions and how this impacts on their ways of accessing information.

There are also papers that address information literacy in school settings and also in out of school contexts, as well as applications in the workplace and in community settings. A few papers take up the issue of equality of access and there could be more focus in further research on the information skills of disadvantaged people, people with disabilities, as well as the needs of women. These are areas where research might throw light on wider policy issues for people concerned with access and equity within society.

There is an information literacy challenge for all who are to engage in this conference due to the sheer volume of presentations. I suggest that you apply your information literacy skills to the papers and use a system for classification of the papers. The one I applied in reviewing the abstracts is outlined below but I refrained in this analysis from assigning a judgement based on quality. A systematic approach may help you to focus on literature of particular interest within which to apply your judgement about the quality of the papers within each category. While on the whole the papers seem to all have academic merit, there are some in each category that in my view stand out.

Classification of Papers

At the time when this review was undertaken of the 396 abstracts submitted, 255 abstracts had been accepted. A few papers have since been withdrawn so the analysis reported below is based on abstracts accepted, and may differ slightly from the papers finally included in the book of abstracts. I divided the papers for review into eight categories as outlined in Table 1 below. This process inevitably involves some boundary issues. For instance the distinction between quantitative research and descriptive survey evidence was based on whether there was an analysis that related the data to theoretical constructs and sought to interpret and add meaning as opposed to describing a population of respondents. The most popular papers were descriptive surveys and good practice reports. While there is a place for such papers in exploratory work, there is limited benefit in terms of generalizability of the results. Less than half the papers fit these categories and this suggests to me that information literacy research is maturing. Most authors who presented examples of ‘good practice’ provided little evidence to support their claims. The few of these papers that did report evidence relied on ‘happy sheet’ responses at the end of the training or activity, but there is limited utility in exit surveys. Those reports that related good practice experience to HE curriculum were treated as a separate category. Some of the papers classified as research or literature reviews are provided by doctoral candidates and these are most welcome both because they are evidence of a growing cadre of information literacy researchers and also because these writers have drawn on the expertise and experience of their supervisors who are established researchers. The limited number of literature reviews is an issue on which we might reflect. Given the volume of activity reported in this conference it is evident that taking stock and accumulating our knowledge about information literacy may offer insights into gaps in research and issues where further research may be appropriate.

It is helpful that several presenters have taken a constructively critical view of the role of mobile devices in access to information. Mobile technology now dominates the practices of many in business and other social activities and is increasingly used by learners. This is transforming the ways in which knowledge is created, as well as the demand for and the use of information. It is an area where further research is necessary to inform policy and practice in information literacy, and in the ways in which knowledge is created.

Table 1. Classification of papers.

Category	Comment	Number	%
Descriptive	Survey Evidence	59	23
Good practice	Descriptive practices with anecdotal evidence of effect	63	25
Theory	Integrating IL theory into a broader social science context	34	13
Policy	Papers describing or advocating IL policy	32	13
Higher Education	Curriculum issues	28	11
Quantitative	Research into aspects of IL with evidence of method	15	6
Qualitative	Research into aspects of IL with evidence of method	13	5
Literature	Reviews of IL and related literature	11	4
Total		**255**	**100**

While the refereeing process has ensured that all papers reference the topics within the ambit of this conference, the quality of papers within each category varies considerably. There are some general principles that could be utilised by participants to select useful papers, and which might be observed by authors for their future work. Applying criteria of currency and of the quality of sources evident will help identify the quality of papers. For those that report research evidence of the trustworthiness and dependability of qualitative data, or the validity and reliability of quantitative instruments will indicate the likely quality of the papers. I offer a word of caution in interpreting findings from quantitative papers. It has been long established (Purdie & Hattie, 1999) that successful educational interventions have small overall effects on learning outcomes. It therefore normally needs quality measurement and large numbers of participants to obtain statistical significance.

The penchant for the PechaKucha style of presentation chosen by some presenters should provide an interesting opportunity to evaluate this style of conference presentation. It will be of interest to see to what extent it leads to stimulating presentations or is a cause of frustration and confusion.

Conclusion

Each participant will have their own priorities for choosing papers so my preferences need to be judged against the criteria appropriate for your needs. Given the quality and the diversity of the backgrounds of participants I am confident that the presentations will provide many insights through which we can all enhance our understanding. I look forward to sharing the experience with you all.

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Keynotes

Towards Universal Information Literacy: The Economic and Social Building Blocks

Paul G. Zurkowski

This is a brief synopsis of a talk which I have been invited to deliver at the European Conference on Information Literacy (ECIL) in October 2013. I will be emphasizing mainly how the Information Literacy idea emerged from an infant industry association, (the Information Industry Association, for which I was the first president) after only three years of its existence. In looking back forty years or so, it could hardly have been predicted at the time, with any degree of accuracy, that this fledgling industry, in the short period of only 20 years or so, could and would become one of the key players, along with the U.S. Department of Defense, and many brilliant computer scientists and engineers throughout the world, including many distinguished librarians and information professionals, that would do the advance work leading to the creation of the World Wide Web and the Internet, incredibly fast search engines, mobile cellphones, and so on. At the same time, there was an explosion of available and readily accessible information resources which was the lifeblood of all of these scientific and technological breakthroughs.

Over the next forty years I predict that we will certainly face another great expansion of information resources in our lives – not just at the summit, but at the base camp. To truly exploit the ultimate value of these resources, I believe that the next four decades will present mankind with three immense new opportunities to take advantage of these resources in what could be called, perhaps a bit grandly, a Golden Age of Universal Information Literacy.

The Emerging Global Information Economy

Information and Communication industry entrepreneurs and gurus, such as Bill Gates and Steve Jobs, and their companies, will continue to proliferate revolutionary newer and better computer, communications and information products that will, collectively, comprise what could be called the bottom of an emerging Global Information Economy pyramid. The whole history of the Information and Communication Industry up to the present time reflects continuous innovations of this kind with each new wave of products building on the foundations of the previous ones.

Group Information Literacy

Relatively small, indigenous communities of people will come together more and more to find ways to serve civilization by expanding human ability to use and share information in groups; that is, to think together in a mutually reinforcing manner toward a common goal. This will apply to: local geographic communities with social aims such as improving the quality of community life, to business groups with commercial objectives, and to government groups with public goals such as the recent NASA mission in my country to study the planet Mars.

Information Code of Ethics

We will continue to take steps leading to a "truth plank" in the information code of ethics. That is, to reach for, discover and validate the element of truth in alleged information (i.e. whether apparent information is, in fact, real, authentic, accurate, reliable and up to date information or whether it is false, misleading, deceptive, ambiguous and out of date). We will expand our understanding of what constitutes information in a deeper sense, including sharpening the distinctions between data, information, knowledge and wisdom, and what new and growing kinds of literacies are needed to address different aspects of human activity.

Making the most of these resources will involve not just searches of databases and other traditional sources but also Twitter, GPS data, MRI scans along with technologies yet to be developed and especially inquiries requiring layered searching depths seeking the truth in the information. This involves incorporating "truth system skills" – for example, how does one deal with conflicting data, how does one hear warning signals, and how does one share with others the responsibility for analyzing the data?

These coming developments offer renewed hope for success in addressing the world's problems and maybe even for saving the planet. I hope you will join me at ECIL in exploring these new horizons, and together we can add some fresh new ideas to the equations!

Keywords: *Universal IL, information economy, group IL, information code of ethics*

Information Literacy Research and Practice: An Experiential Perspective

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In this paper I will explore some experience-based perspectives on information literacy research and practice. The research based understanding of what information literacy looks like to those experiencing it, is very different from the standard interpretations of information literacy as involving largely text based information searching, interpretation, evaluation and use. It also involves particular understandings of the interrelation between information and learning experiences.

In following this thread of the history of information literacy I will reflect on aspects of the past, present and future of information literacy research. In each of these areas I explore experiential, especially phenomenographic approaches to information literacy and information literacy education, to reveal the unfolding understanding of people's experience of information literacy stemming from this orientation.

In addressing the past I will look in particular at the contribution of the seven faces of information literacy and some lessons learned from attending to variation in experience. I will explore important directions and insights that this history may help us to retain; including the value of understanding peoples' information literacy experience.

In addressing the present, I will introduce more recent work that adopts the key ideas of informed learning by attending to both information and learning experiences in specific contexts. I will look at some contemporary directions and key issues, including the reinvention of the phenomenographic, or relational approach to information literacy as informed learning or using information to learn.

I will also provide some examples of the contribution of experiential approaches to information literacy research and practice. The evolution and development of the phenomenographic approach to information literacy, and the growing attention to a dual focus on information and learning experiences in this approach will be highlighted.

Finally, in addressing the future I will return to advocacy, the recognition and pursuit of the transforming and empowering heart of information literacy; and suggest that for information literacy research, including the experiential, a turn towards the emancipatory has much to offer.

Keywords: *Relational approach to information literacy, informed learning, information experience, information and learning, phenomenography*

Invited Papers

Are National Information Literacy Policies Possible?

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Of the three principal areas of information literacy: policy making, process analysis and product development it is the third of these which receives the most attention and usually in the field of higher education (Town, 2003, p. 86). This proposal represents part of an ongoing programme of research and reporting on information literacy policymaking and development. The presentation draws both on examples of good practice from Scotland, Wales and more recently the Republic of Ireland and further afield, e.g., Finland and Hong Kong, together with recent research by leading commentators in the field (Whitworth, 2011; Horton, 2011). The presentation reviews the concept of information literacy policies: what they are, how they are perceived and what they achieve. How do they address the needs of a workforce increasingly positioned in the service sector and in a world where intellectual activity is growing at the expense of manual activity? The presentation is informed by the proposer's work as the former director of the Scottish Information Literacy Project. The presentation will identify and discuss some key issues which need to be included in any national information literacy policy such as linking to national educational curricula, skills development, health literacy and lifelong learning policies.

Information Literacy Policy Raises Important Questions:

- What is an information literacy policy
- What are information literacy policies for
- What is the role of information literacy policy within the wider world of information policy making. How can information literacy be distinguished from ICT infrastructural issues
- Who should make information literacy policy
- How can the information professional exert influence outside the information sector
- What sort of agendas should information literacy policymaking identify/collaborate with, for example, educational and social policy, lifelong learning and health awareness
- Is information literacy recognised in policy agendas worldwide
- Can information literacy exploit digital inclusion agendas
- What kind of state is receptive to information literacy policies
- Have information literacy policies been systematically tested and evaluated

The presentation will attempt to answer some of these questions and will conclude with a list of some practical action points, partly deriving from the presenter's own experience and suggest how they may be taken forward. The problem of the general applicability of national information literacy policies will be discussed.

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Whitworth, A. (2011). Empowerment or instrumental progressivism? Analyzing information literacy policies, *Library Trends*, *60* (2), 312-337.

Keywords: *Information literacy, information literacy policies, national information literacy policies, lifelong learning, information society, informal learning*

An IL Integration Model and Its Application in Curriculum Integration and Staff Development in Higher Education

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There is strong professional interest in the curricular integration of information literacy in Higher Education. A practical model for curriculum integration of information literacy in Higher Education was developed as part of a PhD study in 2010 (Wang). In the last 2 years, this model has been applied in curriculum integration in various faculties at the University of Auckland (New Zealand), including Engineering, Medical and Health Sciences, Education, Arts and Science. Based on the curriculum integration model, an information literacy curriculum staff development programme for Subject Librarians and Learning support services librarians was also developed.

This paper will explain the model and share the experience of how the model has been applied in curriculum integration of information literacy in different faculties, as well as in a staff development programme in an academic library.

The model explains the three key characteristics of information literacy integration: contextualization, on-going interaction with information, and collaboration. These three key characteristics are applied in the curriculum integration of information literacy into academic curricula in many faculties with different disciplines. For example, information literacy has been contextualized in a Psychology course in The Faculty of Science. Online activities were designed based on the assignment research topic in collaboration with Academic teaching staff, Subject Librarians and the Learning Support Services Librarian. Information literacy was contextualized in an Arts Pacific Studies programme by analyzing the curriculum, mapping it against the university graduate profile and identifying the gaps of graduate attributes (including information literacy) in collaboration with Academic teaching staff, the Student Learning Advisor and the Subject Librarian. The Engineering Subject Librarians, the Learning Support Services Manager, Learning Designers and Academic staff have collaborated to integrate information literacy into the four-year Engineering curriculum by contextualizing information literacy with course assignments, activities and assessments, and developing an online tutorial based on an engineering case study. They have also collaborated to scaffold ongoing activities in order to foster and improve students' use of information so that they learn how to research effectively from a lower level to a higher level of study.

The model was also applied in the Library and Learning Services' staff development programme – Information Literacy and Curriculum training for Subject Librarians and Learning Support Service librarians. The programme consists of five modules based on the information literacy integration model (Wang, 2010): understanding information literacy and the roles of librarians, establishing relationships with your faculty, understanding and analyzing your faculty curriculum, curriculum integration of information literacy and curriculum design, and information literacy assessment and evaluation. The staff development programme was piloted in 2010 and fully implemented in 2011. The participants found that they have a greater understanding of information literacy, pedagogy, curriculum, curriculum design and curriculum integration of information literacy. It was so successful that participants suggested that it should be compulsory for all Subject Librarians and Learning Support Services Librarians. It is envisaged that from 2013, all Subject Librarians, Learning Support Services Librarians and team leaders, regardless of experience, will be required to participate in the programme.

The successes and challenges of the information literacy integration and staff development in information literacy curriculum integration will be also discussed.

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Keywords: *Information literacy curriculum, information literacy model, higher education library staff development*

Building Information Resilient Workers: The Critical Ground of Workplace Information Literacy. What Have We Learnt?

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Work-related research has produced an understanding of information literacy that may sit uncomfortably with educational interpretations. Information literate workers draw from a wide range of information sources and engage with information related activities that enable them to know the information landscape of the workplace; to understand how information is situated within it; and, to connect with the performances of work as it happens. This way of knowing about how work happens leads to challenges for the education sector. In particular, how best to support the development of work readiness in the transition from education to work. It also presents challenges for librarians and educators about how to reconcile their understanding and training in information literacy in educational contexts with information literacy practice outside the educational sphere.

The use of socio-cultural perspectives in the framing of information literacy research represents a shift in attention *towards* understanding information literacy as a social practice, and *away* from the information skills approach that has dominated information literacy research and education. Socio-cultural approaches highlight the role of practice and co-participation of the community in shaping the production, reproduction and circulation of knowledge, including knowledge about the appropriateness of information skills in relation to the context. This contrasts with the conventional approach to information literacy where there has traditionally been a focus on the information skills of individuals as something that can be learned and transferred independently of context.

An outcome of the information revolution is that knowledge is now seen to have a central value to workplaces, and it is not enough to be able to locate, access and organize it. Workers must be able leverage knowledge - to transform information and create new knowledge and to use it as source of new ideas (Ferguson & Lloyd, 2007; Ananiadou & Claro, 2009). In this respect the nature of labour must be recast to include the concept of *information work*. The modern multimodal information-based, skills- intensive workplace requires *information resilient* workers who have the capacity and ability to cope with the exponential increase of information and the reshaping of the workplace that has resulted from the growth of information communication technology. The concept of *information resilience* is introduced here to describe the capacity to connect and engage with information in order to solve problems and to reduce possible sources of conflict or stress that arise when there is uncertainty about the type of information that is required, or where to locate it in the information landscape. Information resilience is an outcome of information literacy practice, which is defined as a way of knowing the information environment and landscape that constitute peoples practice (Lloyd, 2010)

Drawing from research in this field, the critical ground of work-related information literacy will be described through lessons learnt. Finally the challenges for information literacy educators will be considered. The importance of drawing from workplace research to inform preparatory educators is a constant theme, and echoes the concerns first raised by Paul Zurkowski (1974).

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Keywords: *Workplace information literacy, workplace learning, information resilience*

The Information Literate Brain

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When we explore the Information Literacy (IL) literature, looking at definitions, explanations and rationales we find that it is usually considered sufficient to draw attention to the evident value and obvious practical justification of IL programmes. What is more, one can still find examples of IL described as merely an enhancement of library User Education or Bibliographic Instruction (BI). Theoretical arguments for IL exist, but they seldom take the argument back to the human brain and its response to information, leaving the theory of IL lacking what we will argue is an essential neuroscience-based perspective.

The lack of attention to neuroscience is to some extent understandable because it has been until recently an under-developed branch of knowledge. Furthermore, articles and reports using data obtained from technologies such as functional magnetic resonance imaging (fMRI), are not easy reading. This is unfortunate because neuroscientists have begun to shed light on aspects of the workings of the brain that are relevant to a range of other disciplines, including information science. Today, however, there is emerging a wealth of published, broadcast and online scientific popularisation of modern neuroscience, which allows the general reader to grasp the implications of the research. From this we discover that neuroscience has a great deal to tell us about humans and information (seeking, discovering, understanding, remembering, etc.).

Perhaps the most significant line of argument in relation to IL concerns the significance of the host of automatic functions that the right hemisphere of the brain performs, in distinction from the left hemisphere of the brain which is more responsible for conscious thought. Current neuroscience suggests that our conscious and instinctive systems generally work in managed relationships. However, we tend to employ our consciousness only when there is an unfamiliar problem to solve. When we do that, we obtain greater cognitive flexibility than is available from our unconscious mind. Yet it is important not to forget that the unconscious mind is permanently engaged with the messages of the senses that are the raw material of information. We should not pay exclusive attention to the conscious, attentive, and calculating aspect of our mind. An information science that gives due respect to the unconscious mind would involve a reimagining of many accepted ideas, including our views on information literacy.

The literature of IL is still dominated by descriptions and rationales for formal programmes of instruction. These naturally concentrate on explaining the structures of the more highly processed information formats and systems for discovering and understanding information. Our contention is that an understanding of the brain based on a reading of popular neuroscience suggests the need for a shift towards a stronger emphasis on user centred learning. This would respect the importance of the personal modes of interaction with information that originate in the unconscious areas of the mind. We argue that a neuroscience-based view of humans and information suggests new approaches in information science generally and the practice of IL teaching specifically.

Keywords: *Human brain, neuroscience, information literacy*

Information Literacy Policies from the Perspective of the European Commission

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Still notably absent in the European Information Literacy discourse is a targeted, definite and resolute political strategy, as well as a disciplinary characterisation that is both univocal and shared. The existence of a causal link between the two factors can be assumed, although it is not possible to establish or to show which of the two is the cause, and which is the effect. In fact, it is not clear whether the lack of clearly defined objectives produces political indifference or if, vice versa, the Information Literacy phenomenon is not yet well established because it lacks the necessary political support.

This, despite the fact that, from the outset, Information Literacy has been conceived of as an objective of national policy. In 1974, in fact, Zurkowski had the early intuition that the forthcoming affirmation of the electronic information market and the consequent growth in the supply of information services would make it necessary to adequately prepare consumers of information, so that they would be able to fully exploit these numerous new sources of information. What Zurkowski foresaw was certainly a mass effort, to be directed at all potential users of information, and thus requiring an intervention at the policy level.

This fact is the key element around which we want to develop our reasoning: each coordinated and pervasive action cannot take place without any policy support. On the other hand, where the policy agenda is unfocused or focused elsewhere, only episodic, redundant and uncoordinated initiatives will take place. Based on this assumption, the paper begins by introducing some theoretical aspects that constitute the basis of our reasoning, and proceeds with a historical account of the evolution of the concept of Information Literacy and how this constitutes an element of information policy.

The essay also proposes the rationalization of various aspects of Information Literacy, suggesting separate plans of analysis from which different levels of intervention can then be developed. The European Observatory on Information Literacy Policies and Research is used as a concrete expression of the model of analysis described, as it provides both a database of initiatives from ten European nations, and a grid structure consistent with the model itself.

The paper then goes on, illustrating the point of view of the European Commission, through the examination of some recently issued official documents, and also by looking at financing initiatives for programs and research projects by the Commission itself.

Purpose of the essay: to illustrate vision and strategic policy of the European Commission on Information Literacy, highlighting priorities, objectives and different types of agents.

Keywords: *Policy dimensions of information literacy, European Commission policies and priorities, information policies*

Information Culture, Media and Information Literacies in Russia: Theory and Practice, Problems and Prospects

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The major aim of the paper is the comparative analysis of information culture, information and media literacy in Russia with the international activity of UNESCO and IFLA in this sphere.

The objects of the paper are the publications considering theory and experience in media education and information skills training in Russia published during the last 20 years. This paper applied a complex of research approaches and methods. Russian theses, books and materials of scientific conferences from 1990 to 2012 concerning information culture, information and media literacy were thoroughly examined. As a result the basic scientific schools and leading Russian researchers are revealed, and theoretical approaches in information and media education are defined.

The paper analyses experience of Russian schools, colleges and universities, the work of libraries in information skills training and media education. The results of research demonstrate that information skills training and media education in Russia develop in parallel, and interact rather poorly. The results prove that the term "information literacy" is used frequently in English-speaking literature, and is seldom used in Russia. Besides, in Russia there is an alternative term, a "person's information culture".

The concept of a person's information culture developing in Russia does not contradict the international concept of "information literacy". It aligns well with the idea of the integration of media and information literacy (MIL) offered by UNESCO and IFLA. Thus, the national traditions of Russian education and culture are preserved and taken into consideration.

There are some interfering factors in Russia which influence information skills training and media education:

- low awareness of members of society, including leaders of governing bodies of educational institutions and teachers about the advantages and opportunities for information skills training that will lead to improvement of knowledge and educational quality, not limited to computer literacy;
- lack of special programs aimed at the development of information skills training and media education. National programs concerning information and communication technologies are focused on the development of technical infrastructure without taking into consideration the humanitarian and cognitive aspects;
- lack of pedagogical and library staff who would have techniques for developing information and media literacy, a person's information culture, and professional knowledge of how to conduct information skills training and media education for various categories of citizens;
- lack of the techniques which would motivate and stimulate teachers and librarians, who create and introduce curricular materials on information and media literacy, and person's information culture, in the educational process.

The main conclusions:

- it is necessary to have coordination of information skills training and media education development at the government level for the purpose of efficiency;
- it is necessary to transition from the spontaneous work of separate enthusiasts (teachers and librarians) to purposeful and system wide activity. So it is necessary to create a special government program concerning development of information skills training and media education;
- development of information and media literacy, formation of a person's information culture, can play a very important role in the Russian education system, which has had many changes recently because of informatization and the implementation of ICT, as well as the creation of a united electronic information and educational environment.
- information literacy in the modern world is a major skill. Therefore the development of information literacy and media literacy, formation of a person's information culture, are necessary elements of the modern electronic educational environment which provides new conditions for quality education, and equal rights of any person carrying out lifelong learning.

Keywords*: Information culture, media and information literacy, Russia*

Productive Partnerships to Promote Media and Information Literacy for Knowledge Societies: IFLA and UNESCO's Collaborative Work

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Building knowledge societies in the 21st century can only be achieved through targeted policies. Drafting such policies remains an international, national and regional challenge. In this presentation, we make a case for productive partnerships as a necessary condition for the effective development and implementation of targeted policies which remove the barriers to open, pluralistic, inclusive, participatory and fair societies. More specifically, we focus on IFLA and UNESCO's collaborative activities in one shared priority area, media and information literacy, in order to illustrate the necessity and value of partnerships beyond geographical borders, across sectors, institutions, organisations and professional groups.

Knowledge societies can be characterised as societies where the efficiency of their structural components correlates directly to the quantity and quality of information, authenticity of their resources and reliability of transmission channels which are required by and are sufficient for each of the components. In knowledge societies, citizens know which information should be used in ordinary and emergency situations, in both professional and private contexts. Citizens in knowledge societies know where to search for this information, and how to assess and apply it critically, responsibly and ethically. Media and information literacy is the cornerstone of knowledge societies, and as such, one top priority area for IFLA and UNESCO, and especially for UNESCO's intergovernmental Information for All Programme (IFAP). The agendas of IFLA and UNESCO share the goal of empowering citizens in accessing, using, creating, sharing and preserving information, regardless of the media, form or format in which it may be conveyed.

The presentation will address the achievements of IFLA and UNESCO IFAP's joint action plan for media and information literacy and outline the way ahead. IFLA and UNESCO's joint activities have the ultimate goal of supporting governments and other stakeholders in developing general and sector-specific policies for building inclusive knowledge societies. Knowledge societies call for a focus on a people-centred approach to actions, rather than on a technology-centred paradigm, which foster freedom of expression, right to information, equality, and citizens' privacy and security protection. These joint actions have targeted and involved a diversity of professional groups and government and civic society institutions. The concept of media and information literacy calls for a deep understanding of the connections between media literacy, information literacy and other literacies. Such an understanding can only be gained by bringing together diverse expertise in order to identify challenges, recommend specific actions and urge stakeholders to commit to them.

Keywords: *Media and information literacy, partnership, advocacy, IFLA, IFAP, UNESCO, knowledge society*

Information Literate Lives in the 21st Century

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The aim of this paper is to outline a curriculum for an information literate lifecourse, sensitive to the context of the individual within a changing information culture. Citizens need to be able to self-audit their changing information literacy needs through life, so they can identify strategies for meeting those needs. Developing this kind of information awareness is vital to empower learners. It should also focus the efforts of professional educators and librarians on lifelong IL, and not only on the immediate needs of a specific course or job. This is different from the more usual generic approach which aims to intervene to develop skills for a citizen's immediate needs at particular life-points, most generally within formal education.

In presenting our argument we draw on our own work (e.g. Johnston et al., 2012; Johnston & Webber, 2006) and that of Schuller & Watson (2009). A key element is our model of the information literate person in the changing information environment, introduced in Webber and Johnston (2000). This locates the Information Literate person at the centre of five powerful social and economic vectors. These are: the nature of the information economy, technology, organisational culture, local/national culture & society, and personal goals. In order to develop as an information literate citizen, each person needs to be able to identify changes relevant to their life path. This process of creating and updating a personal information literacy map would be the central focus for preparing people to cope with, and plan for, information literacy transitions.

The curriculum for an information literate lifecourse is framed, on the one hand, by these vectors. It is also framed by the life stage of the individual, using the four key stages and transitional points proposed by Schuller & Watson (2009). Schuller & Watson (2009) recommend that people at these transition points should be entitled to guidance and learning opportunities, and they note the current lack of support and investment post-formal education.

We will further identify that as well as personal transitions (age and life events), transitional points emerge from the dynamism of cultural, economic and political circumstances, such as revolution and recession. Living examples from today's world (from knowing how to find the information to escape from a country torn by civil war, to drawing on the resources which can make life with an old-age-related illnesses tolerable) demonstrate that educating citizens to develop their information literacy to changing circumstances is a necessity in the 21st Century world.

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Keywords: *Lifelong learning, information literacy, information society*

Walking from Concepts to Facts: A Holistic Information Literacy Approach Experience at the University Level

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The exceptional experience of going from information literacy theory (IL) to practice at a higher education institution is described in this paper. The opportunity to assess faculty information demand and information skills and moving from established research results to planning action, followed by a holistic implementation of an institutional IL program was undertaken by CETYS Universidad. The University, located on the Northwestern Mexico-U.S border, is one of the five institutions of higher education accredited by an American body, namely the Western Association of Schools and Colleges, in Mexico. As part of the accreditation process, the institution embarked on transforming the information literacy role libraries play, enabling them to be instrumental part in University curriculum development and the learning process. This indicated CETYS´ long-term strategic plan included information fluency (Information Culture) as an outcome for graduates, as well as an investment in library development, including facilities and services. As part of how libraries could meet their role, two initial steps were taken. One was to carry out a study of information competences and information demand of full and part-time faculty. As expected, the study reflected opportunities to enhance the professors' information skills, quality information resources use, information enhancement of the learning process, and research training, as well as fostering students´ information fluency. The second step was to conduct a bibliometric study of professors´ publications and assess core undergraduate university courses syllabi´s bibliographies. The evaluation revealed professors infrequently publish and those who do tend to cite obsolete publications, and in some cases do not include references at all. Further, most of the references were to textbooks with little or no inclusion of periodicals or alternative sources, such as websites. Given the results, the University decided to take an integral approach to find the best strategies to take advantage of the findings and increase the use of information and communication technology as a way for faculty to bring information into the classroom. A semester-long consultation involving faculty, academic and support professionals, University management, undergraduate and graduate students, and library staff was undertaken to identify relevant information literacy strategies. Focus groups, town meetings and additional questionnaires were utilized to help gather data to foster an organizational "Information Culture". A report with 50 recommendations grouped into five topics was drafted and presented to the University President and the Council´s Committee for Library Affairs. The actions were narrowed to 22 that, in turn, were used to work on the broad action to define guidelines to embed information fluency into study programs´ curriculum development, an action being undertaken by a professors´ committee, whose recommendations will be ready this summer (2013). CETYS, therefore, has walked from theory to a soon-to-be information literacy practice.

Keywords: *Information literacy theory, information literacy practice, higher education*

Information Literacy in Europe: Ten Years Later

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This paper is a follow up to my article "Information literacy in Europe: a literature review", which was published in the electronic journal "Information Research" in 2003. From that overview of the literature on information literacy activities in Europe it was apparent that much work was undertaken on the part of librarians to deliver information-related competencies. Interest in "information literacy" was illustrated by the number of projects, conferences, workshops, working groups, adaptation of information literacy competency standards, teaching initiatives in many institutions, development of Web sites and Web-based tutorials, and in the area of research. However, the majority of initiatives came from formal education settings and examples in the workplace, community and continuing education context were very rare. Information literacy initiatives in higher education took a variety of forms: stand-alone courses or classes, Web-based tutorials, course-related instruction, or course-integrated instruction. Although during earlier years much of the teaching activities were separate from the curriculum, there were trends towards the integration of information literacy into subject areas. References to information literacy initiatives in Europe were, however, quite rare and fragmented. The majority of publications came from the United Kingdom. Part of the problem of understanding European information literacy activities stemmed from the language barrier. However, the paper attempted to outline the initiatives that might be called as 'information literacy movement' in Europe to 2003.

This paper examines the information literacy movement in Europe ten years later, since 2003, and provides an overview of the main trends and developments. The overview is based on literature reviews, personal observations and involvement, and an exploratory study. The exploratory study attempted to understand the experience of those involved in the development of information-related competencies in European open and distance learning higher education institutions. The research involved a mixed methods research strategy, using both quantitative and qualitative methodologies, built into a two-stage research design. The first stage was a small-scale questionnaire survey of European higher open and distance learning higher education institutions. The results of the survey provided a broad picture of a phenomenon and helped to identify relevant institutions where good practice was taking place. The second stage involved the collection of qualitative data by means of a multiple case study within the post-positivist paradigm. Site visits, observations, document analysis and 72 in-depth interviews with four actors (students, faculty, senior managers and librarians) were conducted in six European open and distance learning higher education institutions. Descriptive analysis was applied to the questionnaire survey data, while the qualitative data was analyzed using a constant comparative method of data analysis to provide a holistic picture of the contextual factors influencing the development of information-related competencies.

This paper aims to give an overview and make a contribution to the understanding of the development of information literacy in Europe during the last decade.

Keywords: *Information literacy, Europe, information literacy initiatives*

Media and Information Literacy and its Kind

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After Zurkowski stated in 1974 that '*people trained in the application of information resources to their work can be called information literates',* the term was taken over by the library world, especially by the school and academic libraries. In 1989 it was defined by the American Library Association as '*information literacy is a set of abilities requiring individuals to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information'* to which was added later '*in an ethical way'*. Soon a variety of related terms emerged - some of them restricted and some of them broad. All of them can be considered as a part of the umbrella or container concept of '*Information Literacy'*. One of the broadest concepts is '*Media Literacy'*. Several UNESCO expert meetings brought the two 'groups' together. During these meetings, it became clear that they are basically referring to the same concept. A request for a 'Recommendation' from UNESCO to IFLA's Information Literacy Section opened the option to combine the terms '*Media and Information Literacy'*. At the 2012 Moscow conference the concept was redefined and the abbreviation '*MIL*' was introduced.

Keywords: *Media and information literacy, media literacy, information literacy, MIL*

Papers

Conceptions, Ideas, What Else? Information Literacy in Hungary

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In Hungary information literacy has been constantly present in the LIS and related (mainly pedagogical) literature since the second half of the 1990s. Writings directed towards LIS professionals addressed new media and a wide array of literacies, and approached issues, related to the role of amateurs and professionals, IL's relationship to abstracting and information overload, as well as to LIS education.

Especial attention was given to international literature. Extended abstracts were published on some key articles and the most important content of fundamental documents was covered by a book-length review. Reflections on IL can be found also in a textbook that addresses actual topics for the library of the 21st century. An e-book also appeared that provides, among others, empirical data on the possibilities of developing information literacy in the educational system. A dissertation, most possibly the first Hungarian one on IL, examined children's conceptions about IL, was defended at a faculty of pedagogy in 2012. There is also a recent extensive paper, which clarifies the differences between information, digital and network culture.

LIS professionals have written a number of publications (among others, short articles, intended to popularize IL) for education professionals, including those working in adult education. Media professionals became informed in this way about media literacy and IL. Applied linguists' awareness was raised similarly towards IL and academic literacy.

Despite the existence of a substantial body of literature in Hungarian, the use of the expression *information literacy* is controversial and some government documents contain both IL and digital literacy without distinguishing between them, though digital literacy's meaning is basically limited to the efficient use of information and communication technologies. The discussion on digital literacy at a recent national conference on the future of the Hungarian library system indicated that this anomaly still exists.

Although the library profession is apparently aware of IL, there seem to be no signs of any IL framework being used. Fortunately, recent articles show a slow shift in the attention towards IL. One example of this is a school library project, the author of which acknowledges the definite influence of some of the theoretical papers.

Besides further analysis of the literature and initiatives, we will examine the results of a survey, developed by an international collective, that measures information behaviour and skills, administered to the students of a small Hungarian library school.

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Keywords: *Hungary, IL literature, IL practice, IL survey*

State of the Art of Information Literacy in Spanish University Libraries and a Proposal for the Future

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The design of new curricula, a result of the European Higher Education Area and the implementation of the new teaching methodology they brought about, has meant an opportunity to overcome traditional training imparted by University Libraries. Traditional user training (UT), instrumental in nature, is gradually leading Spanish university libraries (SUL), albeit unevenly, to the training on information competency (IC) or information literacy (IL).

New training needs, closely linked to digital literacy, learning autonomy and professional ethics, are more in accordance with the needs of users in a digital, collaborative and networked society. This is the reason why REBIUN (Spanish University Library Network) has coined the term CI2, which links Computing Competency and Information Skills (IC & I), identified in other contexts as digital competency.

The aim of this paper is to present the state of the art of training on information management competency in Spanish University Libraries (last three years). For that, a diagnostic of the status of their training plans has been carried out. Taking into account the good practices of a number of reference and cutting-edge libraries within the Spanish panorama, this diagnostic will provide an overview of the practices and level of consolidation of the different CI and CI2 training models, as well as expose trends and proposals for action in the future.

The methodology used in our study is based on a review of published literature on user training CI and CI2 in Spain, as well as on meetings, workshops, conferences, specialized seminars, studies and reports from working groups, analysis of official statistics, and SUL training Websites.

Among the results obtained, we highlight 1) the generalization of the traditional user training (UT), followed by the lower-level educational offering in CI and the scarce incidence of CI2; 2) the coexistence of training offered exclusively by the library, with or without acknowledgement of the curricula, and the one which collaborates with the teachers, within the frame of subjects, in a curricular or non-curricular way; 3) the trend toward training in virtual or blended format; 4) the integration of information competency in the new degrees, especially in the first years; 5) the importance of evaluation and the various proposals which are being formulated from REBIUN to accredit that competency.

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Keywords: *University libraries, information literacy, computing and information competencies, digital literacy*

Information Literacy Course – The Perception of Students and Professors: The University of Zadar Case

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Since the academic year 2011/2012 University of Zadar's Department of Information Science professors and the University library librarians have jointly taught an elective course, Information literacy. The course is based on the ACRL Information Literacy Competency Standards (2000) and is structured as a set of practical exercises. The course is designed for students from various departments; thus it remains on a general level and does not encroach on the individual study areas.

The purpose of this research was to examine students' and professors' opinions concerning the IL competencies represented in the IL course curriculum, and the possibility of future collaboration between professors and librarians to help students gain IL competencies in the context of subject courses. Numerous authors point out the necessity of teaching IL skills within all the courses, because learning and applying such skills within disciplinary contexts facilitates comprehension and gives deep meaning to the contents (Hepworth, 1999; Eisenberg, McGuire & Spitzer, 2004). Methods used in this research are survey and interview. Students from two generations of course attendees (53 students) from social sciences and humanities departments, as well as 20 faculty members from these departments were used as the sample. The results show that both the professors and the students are aware of the students' missing competencies and that the professors consider these competencies to be important. The students believe that the IL course could help them with their coursework.

The interview with 10 faculty members indicated the need for close collaboration between librarians and professors in teaching IL, advancing it from generic competence level to learning within disciplinary contexts. The professors find the IL course useful and are willing to collaborate in order to improve their own courses. Admitting to having insufficient IL competencies, they suggest additional focused in-class workshops with librarians presenting topics such as searching databases. Interviews with the faculty indicate they were not fully aware of the content offered in the IL course, and were unaware of the possibility of collaboration with the librarians which could contribute to teaching IL skills in their subjects' context. It can be concluded that the Information Literacy course itself is insufficient - but the research indicated that this course can be a significant first step in developing cooperative programs of IL education calling for professors' and librarians' joint efforts.

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Keywords: *Information literacy, information literacy course, academic libraries, University of Zadar*

Information Literacy in Learning Spaces: A Holistic and Integrative Approach

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This paper will discuss the impact of new learning spaces on information literacy concepts. Therefore characteristics of learning spaces will be introduced and new opportunities in terms of information literacy development will be analyzed. Finally the holistic and integrative concepts of information literacy in learning spaces will be evaluated in terms of their relevance for future developments of information literacy.

Learning Environments Have Changed

New learning spaces have changed the learning infrastructure in Higher Education. This paper gives an overview of the main developments and changes in the learning paradigm. The terms "Learning Center“ and “Learning Commons” describe new service concepts which evolved within the last two decades in the Anglo-American academic world (Gläser, 2008), and grew to a worldwide phenomenon (Bonnand & Donahue 2010). Characteristics of the learning spaces concepts will be discussed to show how they focus on students and their learning experience.

Need for Broader Competences

Key competencies and skills become more important in Higher Education in the face of the changing requirements in academic and working life. This also concerns information literacy development for students, right in the centre of academic skills. Information literacy is more and more seen in context and connection to other key competencies. The trends towards a broad understanding and an integrated perspective of information literacy (Beard & Dale 2010) will be analyzed. The evolving character of information literacy will be examined on the basis of current concepts, definitions and models.

New Quality of Information Literacy Concepts in Learning Spaces

Changes in information literacy concepts that accompany learning center developments can be identified. Learning spaces are used for informal and more practical learning and this also implies new means of information literacy instruction (Kasowitz-Scheer, 2009), leaning more towards workshops and consultation. Peer-to-peer concepts with student advisors enhance the quality of contacts for students (JISC, 2006). Communication and collaboration of net generation students are obviously not limited to physical spaces. Virtual Learning environments will be introduced. It will be shown that learning spaces enable and shape the context for information literacy activities in a holistic way. Conditions and particularities will be described and analyzed that refer to the specific character of these concepts. This will be illustrated by practical examples.

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Keywords: *Learning spaces, competences, informal learning, social learning, virtual learning, peer to peer learning*

Polymathic Information Literacy: Deconstructing What It Means to be Interdisciplinarily Literate

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The field of librarianship has focused significant attention on efforts to define information literacy, to develop and apply competency standards to the practice of research, teaching, and learning, and to create assessment rubrics that outline criteria for evaluating the efficacy of acquired information literacy skills (Wilkinson & Bruch, 2012). Concomitantly, a movement has evolved around the concept of interdisciplinarity. Although not as widely discussed or promoted outside of academe, interdisciplinary inquiry is recognized as an important epistemological approach to solving complex research problems and confronting intractable social issues located beyond the scope of any one discipline (Collin, 2009). Researchers have suggested several cognitive benefits of being a polymathic thinker (Repko, 2008) while others have formulated typologies to help organize interdisciplinary knowledge and classify observable practice related to programmatic restructuring, collaborative research, and individual engagement in learning (Mulder, 2012; summarized in Huutoniemi *et al*, 2010, p. 81). However, despite the proliferation of studies that investigate the growing centrality of interdisciplinarity in education, there is scant literature that delineates and measures specific performance objectives and assessment strategies for integrative learning (Borrego & Newsander, 2010; Kezar & Elrod, 2012; Parker, 2010). While Jones (2012) and others have noted the value of formalizing a relationship between information literacy and interdisciplinary inquiry, the two domains have developed, in many ways, only parallel to each other and, therefore, have not yet become integrated in such a way as to lead to the development of well-defined competencies identifying the essential knowledge and skills expected of an information literate polymathic learner/researcher. Based on a review of planned learning experiences from integrated curriculum programs in higher education and research that seeks to advance interdisciplinary practice, this paper proposes a preliminary set of literacy-based competencies and associated abilities intended to prepare students to engage effectively in interdisciplinary research and knowledge production.

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Keywords: *Competencies, interdisciplinarity, learning outcomes, knowledge level*

An Investigation into the Development of an Institutional Strategy to Build Research Capacity and Information Literate, Critical Thinking, Independent Learners in Three African Universities

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This paper presents the findings of research involving the Institute of Development Studies and Loughborough University, in the United Kingdom; the University of Botswana; the University of Zambia and Mzuzu University in Malawi. The purpose of the study was to investigate the current situation, in terms of information capabilities, and the challenges. An institutional strategy was recommended to build research capacity and develop information literate (IL), critical thinking independent learners that could be applied in other higher education institutions.

Data was collected in collaboration with the African universities via interviews (Zambia and Malawi) and a workshop (Botswana). In total 46 senior academics, librarians and academic support staff took part. Based on an Outcome Mapping framework, research questions included: what is the vision for developing independent learners and the perceived outcomes and impact? What has been achieved and what needs to be done? What are the challenges? Semi-structured interviews were recorded and transcribed. The workshop was recorded using video and flip charts. Both were analysed thematically and common and unique themes identified across the three institutions.

Key findings included:

- As in other countries, many students lacked IL, critical thinking and independent learning capabilities and were often described as passive and embracing a 'least effort' culture. To date, strategies to strengthen these skills have had limited success, despite examples of good practice.
- Students involved with 'real world' research, or learning encompassing competition, demonstrated the motivation, enthusiasm and capacity for developing their information capabilities.
- Challenges included high student-to-staff numbers; teacher-centred approaches to learning; funding; limited Information Communication Technology (ICT) and a lack of 'Southern' research material.
- Academic staff needed training in the use of more engaging approaches to learning to build capabilities and to monitor and evaluate impact.
- Academic staff needed training to build their capacity to undertake research and generate local content.

Practical approaches to overcome specific challenges in developing information capabilities were identified. These included the use of e-learning and peer assessment (to counter low staff–student ratios); allowing students more time for projects (to counter resource limitations); using 'real world' problems (to foster student enthusiasm and develop research capabilities); and explicitly rewarding good information capabilities.

The connection between research and teaching capabilities was made in all three universities. Academics would like to improve students' independent learning ability, but they lack the time, knowhow and institutional support. They also want to develop their own research capacity. To motivate and enable academics to embrace change and create an environment that fostered students' information capabilities both academics' research capacity and their pedagogic ability need support. Building both research and pedagogic capabilities requires an institutional strategy, including a resource where experts in information literacy, critical thinking, research skills and pedagogy, help develop capabilities and facilitate change. In addition a holistic approach was recommended involving partnerships within the institution, as well as with external bodies, such as other universities, research establishments, government, schools and employers, and that these ideas could be tested by taking a participative, action research, approach over a three-year period.

Keywords: *Higher education, information literacy, critical thinking, independent learning, research capacity*

From Scientific Literacy to Lifelong Research: A Social Innovation Approach

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Scientific literacy does not equal teaching and learning sciences in public education. It is a *complex set of knowledge of methods, approaches, attitudes and skills*, revolving around these questions: how to do scientific research? How to think scientifically? What is the best way to discover the state of art in a given field, and how to generate research questions and hypothesis in the hope of producing new scientific results? How to plan your research project? How to cooperate with other stakeholders? How to use resources and facilities, including books, journals, deep Web data collections, tools, labs etc.? How to test and evaluate outcomes? How to share and publish them?

We know from educational action research programmes, that being able *to build scientific literacy basics for students results in measurable improvements in the effectiveness of their overall learning ability*.

However, scientific literacy is not for supporting everyday pedagogical practice. It is supposed to help *overcome the control crisis of contemporary Science* itself. The information technology background systems of modern sciences produce an incredible quantity of output signals. For many of the sciences it is more and more problematic to manage the content of their permanently swelling stored background data and information.. The small group of researchers, backed by however great amount of computing- and picture-converting capacity, is not able to analyze intelligently the astoundingly large and growing amount of signal production and digitized resources. The development of cyber-environments and cyber-infrastructure does not solve the problem. *Science needs a real Copernican turnabout to apply (new) brains as problem-solving research mega-machines*.

Where are these brains? If we need them in a "pre-digestive" process, we can easily find them where the task is exactly to enable these brains even to do scientific work: in the school benches. If there are *distributable research tasks*, scholars and teachers can manage *hybrid knowledge-producing communities*. Our realistic vision is 800 million students, 40 million teachers and 5 million scientists of the world, merging into a scientific problem-solving megamachine. To be a partner in real research projects, including agenda setting related to local problems or civilization issues, it is best to *motivate the students, and help them understand why they should learn anything "scientific": in order to be able to take part in cooperative programmes*.

Between the ages of 12 and 18 everybody *can think and work as a scientist* – of course, it does not mean that everybody will be a scientist. But everybody can learn to deal with scientific issues as a part of research communities even after their school life. That is why it is timely to call this paradigm *lifelong research*.

However, changing the existing "science teaching" patterns is a long road to follow, so the idea needs a social innovation buoyancy. From our side we developed an online workflow platform to define, plan, organize, perform and disseminate hybrid research projects, called *Palaestria.* The proposed features ("topic stock market", application store, publication module, reward engine) and implementation plan of this future-oriented online tool will be presented.

Keywords: *Scientific literacy, social innovation approach, lifelong research*

Incorporating Information Literacy in Ibero-American University Libraries: Comparative Analysis of the Information from their Websites

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This purpose of this paper, framed in research *"Lessons Learned in information literacy programs at universities in Ibero-America (Spain, Portugal and Latin-America)"* is to show how, from the information displayed on websites of university libraries of the 22 countries that make up the Ibero-American context, it is possible to estimate the incorporation (or lack thereof) of information literacy in these universities at different levels. To achieve this purpose, the method used was web content analysis, considering first, the definition of seven categories of identifying information from such websites and programs/services training that they present: (1) Definition of the program: Mission, Vision, Objectives, Operational Plan, Instructional Plan - (2) Fundamentals of the program: Definition, Instructional Model and Standard of information literacy utilized - (3) Structure of the program/service training: courses offered, modality courses, incorporation of ICT, Web 2.0 and Virtual-Learning Environments and recognition of curricular or extracurricular courses - (4) Program Assessment: management indicators, learning indicators and continuous improvement processes. The categories also include additional information, such as: (5) Publications on this subject and the experience of the library and their information literacy program: articles, papers, Web 2.0 resources, etc - (6) Participation in working groups and networks on this subject: networks of university libraries, librarian's collectives, etc. - (7) Participation in media and dissemination and learning resources of this subject: discussion lists, blogs, wikis, twitters, newsletters, online communities, etc. Considering these seven categories, particularly concerning the structuring of the program/service training, which is most common in the information presented on Web sites, four levels were established, involving or lacking incorporation of information literacy in the university, utilizing adaption of the classifications proposed by Wang (2007) and EMPATIC-European Union (2009). The project then proceeded to the review of 2736 websites Ibero-American university libraries and generated a database with the information available in each library. Taking into account that the website information serves as initial reference information, the project found in general, that of the 2736 university libraries of the 22 Ibero-American countries, 1833 do not have information on programs/services training for their users (67%); 421 only offer training to meet library installations and use their library catalog (15%); 331 offer besides the visit and the training to use the catalog, courses or activities in learning how to use electronic databases (12%); and only 135 libraries incorporate training covering several or all competencies involving information literacy: search, organization, evaluation, communication, ethical use of information (5%). In addition, 36 libraries offer training which involves several or all information competencies, earning a credit-curricular recognition and evaluative value for students (1%). These results show that the incorporation of information literacy in Ibero-America as a whole region of 22 countries is still in its initial development, however, in some specific countries, the reality is more positive and a significant percentage of universities are already utilizing very good practices in helping people learn these competencies (Spain, Cuba, Puerto Rico, among others).

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Keywords: *Information literacy, information competencies, university libraries, Spain, Portugal, Latin-America Ibero-America, content analysis, web sites*

Effective Use of Repositories: A Case for Information Literacy Development

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This paper reports on an investigation into the perceptions of and attitudes towards an institutional repository in a Swedish university and concludes that the information literacy of academic members of staff is often taken for granted. Information literacy investigations have generally considered the faculty member as a partner in information literacy programmes (e.g., Black *et al.,* 2001), rather than a category of institutional member in need of information literacy development.

Although the concept of workplace information literacy has been developed and, indeed, is found in the origin of the term (Zurkowski, 1974), only a small amount of work exists on information literacy development for university staff (e.g., Bruce, 1999). School teachers, on the other hand, have been given rather more attention (e.g., Merchant & Hepworth, 2002; Williams & Coles, 2007), with rather mixed results. Some research finds that teachers are generally information literate; other work finds a more nuanced situation. This is likely to be the case also in universities.

The investigation reported here use statistical analysis of a repository database, analysis of policy documents, interviews with policy makers and staff identified as "research active", and an online questionnaire directed at all active research staff in the institution.

The database analysis revealed that many research outputs were simply recorded and no electronic copy was made available, furthermore, a significant proportion of entries were for papers in conference proceedings for which no record could be found. That is, an entry was made for a conference paper, but no evidence for the existence of the paper could be found, following an extensive search for the existence of the conference, or its proceedings.

The interviews with policymakers and researchers revealed tensions between the need for research assessment and the need of the institution to pursue its own development policies, focusing on the professional audiences. It was suggested that work with local organizations, trade unions and professional associations was often of greater importance than satisfying the need for publication in 'quality' journals.

The interviews with researchers and the questionnaire study also revealed that some researchers had a poor understanding of open access in general, the policies of commercial journals *vis-á-vis* open access, and the role of the repository in making research outputs available to the world at large. For example, researchers believed that 'author-charging' was the only mode of open access publishing and that depositing a conference paper in the repository would jeopardise the possibility of subsequent journal publication.

The results of the research suggest that not all university staff are fully information literate and that university administrators, aided by the university library, need to ensure that everyone is aware of the benefits of open access publishing and the role of repositories, if the institution's policies are to be implemented effectively.

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Keywords: *Information literacy, academic staff, universities, faculty, research outputs, repositories, open access*

I-LEARN: Information Literacy for Learners

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Learning—the construction of meaning from interactions with information and experience—has taken on a new cast in contemporary information-rich environments like the Internet and the Web. Increasingly, learners in every venue, formal or informal, are trying to construct meaning from a swirling sea of text, images, sounds, and other stimuli. Traditional navigational aids—vetted and edited materials, signposts like tables of contents and indexes, and the professional expertise of librarians—are often missing when learners search for information that will help them gain accurate and actionable knowledge that will enable them to plan effectively and make sound decisions.

The six-stage I-LEARN model—Identify, Locate, Evaluate, Apply, Reflect, kNow—both describes the process of learning with information and presents a mnemonic that can help people accomplish such learning. Built on the three familiar components of information literacy (access, evaluate, and use), the model expands on these to become a *learning* model, not merely an information-seeking one. This specific focus on learning is what distinguishes I-LEARN from similar models and makes it particularly relevant for 21st-century learning. Using the model, the learner Identifies what s/he wants to learn: a topic to investigate, a problem to solve, or a question to answer. S/he Locates information that is broadly relevant to the task and Evaluates it for such things as authority, specific relevance, timeliness, etc. In the next stage, the learner Applies the information to the task—generating a new understanding, organizing it in a coherent and communicable way, and devising an appropriate way to communicate it. It is at the Apply stage—which is based on constructing new meaning—that the model becomes a true "learning" model. In an educational setting, this stage includes the creation of a product like a timeline to communicate chronological information, a slide show to communicate visual information, etc., to demonstrate what has been learned. In an informal setting, the "product" is likely to be a mental one rather than a physical object. In the Reflect stage, the learner considers both the product and the process that has led him/her to this point and either revises the current "product" or notes how to improve the process in the future—or both. In the kNow stage, the learner uses the new understanding as the basis for generating new questions in order to continue the learning cycle.

I-LEARN is solidly grounded in research and theory from both information science and instructional design and is currently being validated in several settings—through dissertation research in Kentucky, through the development of "I-LEARN scenarios" (a particular kind of learning material) by school personnel in Philadelphia, and in a pilot study and planned ongoing research in a Philadelphia elementary school.

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Keywords: *I-LEARN, learning, instruction*

Bridging the Digital Divide with Changing Information Literacy Methods in Post-Apartheid South Africa

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The demographics of student enrolment in South African higher education institutions have evolved during the post-apartheid years. Such enrolments comprise a heterogeneous group of students, by race, economic background, information literacy (IL), digital background, educational background, etc. The literature reviewed presents varying definitions of the digital divide. However, for the purpose of this paper, the digital divide is defined as the gap or divide, between those with access to and skills in information and communication technologies (ICTs) and those without such access or skills. Disadvantaged South African students from rural areas, entering higher education institutions may have little or no knowledge of technology. Literature reviewed points out that physical access to technology is not enough to bridge the digital divide and thus training becomes imperative in addressing the digital divide. The teaching component has become a vital aspect of academic librarianship, ensuring that learners bridge the digital divide and become an active member of the information literate society. Students entering South African higher education institutions have access to technology but many have no prior knowledge of how to use the information technology tools. South African higher education institutions have students who have had no ICT access and thus no ICT skills while there are those who have had access and are skilled in the use of ICTs.

The aim of the paper is to identify innovative teaching and learning methods that would accommodate the diverse student population in the IL classroom and to recommend guidelines for teaching and learning of IL. The paper also attempts to highlight the changing role of the librarians in teaching and learning in higher education institutions in South Africa. The paper reports that the digital divide does impact information literacy training at higher education institutions in ways such as, slowing down the progress of IL lessons, and disadvantaged students needing more interventions to bridge the information and digital divide. The paper also recommends that computer literacy training should be provided for digitally disadvantaged students before IL training commences. Active student-centred teaching and learning methods, such as, group work, online tutorials, games, peer-learning and interactive websites should be used to accommodate both digitally advantaged and digitally disadvantaged students, in combination with other tried and tested methods such as chalk and talk. In attempting to bridge the digital divide librarians must ensure that the preferred teaching and learning methods are used to accommodate the digital divide. The issues discussed in this paper could be applicable to other developing countries.

Keywords: *Information literacy, digital divide, user education*

Research Data Literacy

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Research Data Management, i.e. the processing of all types of raw or primary data, that are created during every research process, will not only play a crucial role for many scientists in the next years, it will also have strong implications for library and information science. Information specialists will become data librarians or data scientists on the one hand. On the other hand, the teaching and training of students inside and outside library and information science will have to be adapted to the new challenges of providing data infrastructures for all scientific disciplines. Besides the production of primary data, this includes their integration into secondary data by using new forms of publication.

The paper sets out a definition of research data management and the description of several ongoing international initiatives to illustrate the field of study. It will then explain in detail the technical developments needed to build the corresponding data infrastructures and the requirements to assure consistent integration and interoperability of the data. Furthermore, it will speak about the new or modified working processes that accompany these new infrastructures, especially the emerging field of data curation, and the role that librarians, will play, i.e. the new tasks that they have to accomplish. This new role, often defined as data scientist, will force them to act as intermediate linking hubs between the data and all stakeholders.

Due to the fact that not only the scientists, but also the students, will have to work with the research data being published, the paper will mainly discuss the need for teaching the students in a new sub-discipline of information literacy, namely "research data literacy." The author will first outline the general field of this sub-discipline by defining the cognitive interest and the objects of investigation as well as the specific impact on the existing and widely known skill factors in information literacy, namely the location, analysis, organization, creation, presentation and evaluation of information, and – in the context of this paper – research data.

According to the prototype curriculum defined by Shapiro and Hughes (1996), the author will then strive towards formulation of a complementary curriculum for research data literacy and the knowledge concerning the tools, resources, and the publishing processes that should be taught to students or information specialists who are already on the job.

Special attention will be given to the two models that are of primary interest for all activities in research data management, i.e. primarily, the data curation cycle, and secondarily, the data continuum cycle. As will be seen, the major aspects of the data curation cycle, such as the creation, selection, use, and transformation of data, shows strong parallels with and implications for the skills and processes that play a role in information literacy, too. The paper will hence concentrate on the difference between information literacy skills as defined by Eisenberg, Lowe and Spitzer (2004) and practiced today, and the further skills that are needed to fully understand and integrate research data and their context into studies and scientific activities.

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Keywords: *Research data management, data scientists, data curation cycle, research data literacy*

How Faculty in The Hague University of Applied Sciences Use the Scoring Rubric for Information Literacy

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In 2009 the author developed a scoring rubric for performance assessment of information literacy. A scoring rubric can be considered as a set of criteria for rating important dimensions of performance, as well as the standards of attainment for those criteria on different levels (Jonsson & Svingby, 2007, p. 113). The development process and the testing of the Scoring Rubric for Information Literacy were reported in a previous journal article (Van Helvoort, 2010). More popular articles were also published in a Dutch library magazine and an internal magazine of The Hague University. After three years the author decided to investigate how the rubric was used in the daily practice of his university. The aim of the research was to gain evidence-based arguments for the use of the scoring rubric in higher education.

Faculty members from four different departments from The Hague University of Applied Sciences were interviewed on the ways that they used the scoring rubric and their arguments for it. The departments in which they work are Nutrition and Dietetics, Social Educational Care, Communication and Business IT & Management. A fifth lecturer who works at the department of Mechanical Engineering answered some questions by email. The topic list which was used as a guide for the interviews and which was sent to the lecturer responding by email, was based on subject analysis of scholarly literature on rubric use. The responding lecturers were selected because they had shown that they were interested in the scoring rubric in the past.

Four of the five respondents used (parts of) the rubric for the measurement of students' performances in information use but none of them used the rubric as it is. What they told the researcher is that the rubric helped them to improve the grading criteria for existing assignments. Only one respondent used the rubric itself but this lecturer explained that at her department the rubric has been extended with some new criteria on writing skills. Furthermore, it was discovered that the rubric is not only used for grading but also for the development of new learning content related to research skills. The integration of these skills in the curricula of Universities of Applied Sciences is a current issue in Dutch Higher Education.

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Keywords*: Information literacy, scoring rubrics, higher education, Netherlands*

Can Social Tagging Assist Information Literacy Practices in Academic Libraries?

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Developing Information Literacy (IL) practices in academic libraries is essential as emerging technologies change the way in which people interact with information. A Social Tagging System (STS) is one emerging technology that allows users to describe information through the assignment of free-text keywords or 'tags' (Golder & Huberman, 2005). This can support the user in finding, collecting, organizing and sharing information (Peters, 2011). This study addresses an area of research not previously explored: the relationship between IL and STS. This work aims to discover the underlying benefits of STS functionalities that can assist users with retrieving, managing and sharing information in academic libraries. The study develops a conceptual framework that combines STS functions with IL skills, derived from a comparative analysis across eleven online STS's, including 6 social bookmarking and 5 Library/Museum 2.0 tagging services. The framework comprises tag-related functions which users can employ while using the systems categorised into: posting, searching, browsing, managing and sharing. These categories are linked to IL skills that have been adapted from SCONUL's Seven Pillars of IL: identify, scope, plan, gather, evaluate, manage, and present (SCONUL Working Group on Information Literacy, 2011).

To explore social tagging in academic libraries, a mixed-methods approach was used: (1) questionnaires to collect demographic and background data and (2) semi-structured interviews to explore participants' views on how tags are assigned to describe information, and using other tag-related functions (e.g., searching and browsing), can assist with using information. The qualitative data was studied using thematic analysis based on STS functions and IL skills. Participants were bilingual (Arabic- and English-speaking) university students. Participants also took part in an interactive tagging experiment in which they used Delicious, a publicly-accessible social tagging system, to add tags to six Arabic and English documents.

46 students (18 males; 28 females) participated in the study from Kuwait and the UK: 14 from the University of Sheffield, 18 from Kuwait University, and 14 from the Gulf University for Science and Technology. The findings indicate that a high number of students (76%) perceive STS functions to be helpful and important for their use of library catalogue services. Participants commented that the functions could assist them in re-finding resources they found useful and intended to use again, help them in organizing and using resources for coursework tasks, and assist them in sharing information. This helps to confirm the relationship between functionalities of the STS and IL skills. Carrying out social tagging could help develop and enhance IL skills. However, results did indicate that some functions (e.g. managing, and sharing, which reflect practicing the IL skills of gather, manage, and plan) are more beneficial than others. It appears that a STS has the potential to support IL skills in collaborative knowledge-sharing environments and should be one of the emerging technologies that academic libraries consider in their future services. Providing a framework that relates the STS's functionalities to an existing IL framework will help to ensure that functionalities introduced into library systems are able to support the IL skills of students.

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Keywords: *Social tagging, information literacy, academic library*

Information Literacy Skills Assessment of Undergraduate Engineering Students

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Objective

This study assessed IL skills of first year undergraduate engineering students of a Pakistani university in order to plan this instruction, and to provide the university with reliable data for integration of this instruction in university curricula.

Methods

Air University (AU) offers undergraduate programs in Electrical, Mechatronic, Mechanical, and Computer Science Engineering. The population consisted of 475 second semester students in these disciplines, with a sample of 151 (31%) selected through a cluster sampling approach. Based on "The Information Literacy Competency Standards for Higher Education" published by ACRL (2000), an achievement test was administered in the class environment. Out of a total of twenty-two questions, nineteen were directly related to the assessment of IL skills. For data analysis questions were grouped together under five themes. Independent samples t-test and ANOVA were applied to check gender and program-based differences in IL skills of students.

Results

The study found no gender or program-based differences in IL skills of students. The study also revealed that students did not possess IL skills good enough to help them in their university level studies. They do not have a fair idea of methods and tools needed to retrieve required information from various resources. The lowest frequency for correct answers was for questions regarding the ethical use of information, which shows their poor concept for including references to the sources of information in their own work. Only 9.9% of respondents identified situations where reference to the information source must be included. This logically results in a higher rate of plagiarism. The highest frequency for correct answers was for choosing the right search strategy in order to find all documents by a specific given author in a library catalog. 73.5 % selected the right option in this case.

Conclusion

This low level of IL skills shows the need for an IL program properly planned, designed and carried out in a consistent manner.

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Keywords: *Information literacy, Pakistan, undergraduate engineering, need assessment*

Information Literacy, Mobile Technologies and Study Practices

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Mobile technologies comprise a growing area of research attention with respect to young people´s digital technology use. In this field of research, a central question is how the mobile-practices intersect with study practices, and what kind of new literacy practices the intersection may involve. In March 2012 two focus group interviews were carried out with 8 students in each group. The students were coming from different disciplines in higher education. The groups discussed 6 main questions concerning how they used mobile and mobile applications in relation to their study practices. Each interview lasted two hours. The aim of the study was to examine whether and how the intersection of the two practices mentioned may create dilemmas for students in their study practices. In this case, the new literacy practices are understood as the students´ negotiations of the ´acceptable´ way to perform mobile-practice as part of their study practices.

In this paper information literacy is seen in a "practice theoretical" perspective. The analysis is based on the practice theory developed by Theodore R. Schatzki (2002). This means that social practice is defined as organized nexuses of actions. The understandings, rules, and teleoaffective structure that link the doings and sayings of a practice form its organization. The two practices mentioned, mobile practices and study practices are not necessarily organised by elements that fit together across practices. The understandings and rules for the use of information can be very different in the two kinds of practices. Further, the expectations and conventions of performing each practice can challenge each other. The paper analyses the intersection of the two practices as it is presented in the negotiations between the students in these two interviews, and it shows the dilemmas of the students concerning the evaluation and the use of information in relation to the intersection of the two practices. The results indicate the existence of two kinds of new literacy practices involving the mobile and mobile applications. The first kind is a ´collaborative practice´, which consisted of activities such as searching for ´quick´ information, reading each other's material on the mobile, arranging or cancelling meetings through the mobile, etc. The second kind is a ´knowledge enabling practice´ containing activities such as searching for ´quick´ information, using mobile applications as a supplement to the syllabus for particular courses, etc. However, the second one was a subject for discussions, and the students presented a variety of strategies for managing this practice as part of their study practices.

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Keywords: *Information literacy, mobile technologies, study practices*

Towards an Information Literacy Strategy for Taibah University

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Taibah University is a recent public academic institution located in Medina in the Kingdom of Saudi Arabia. It constitutes about 28 colleges in different fields of medicine, pure sciences, human and social sciences. And it is organized in two sections, one for male students, and the other for female students. The aim of this study is to determine the level and the state of information literacy (IL) among students in order to develop an IL strategy for the university. The focus will be on students' behavior regarding information, especially their information searching strategy. As we had no data regarding these students' IL behavior, we considered that the best method for gathering this data was to survey students who had already graduated. Thus, we distributed questionnaires to 1902 students (1335 from the female Section and 567 from the male section) from 3 colleges (science, humanities and education). The survey contained 24 questions based upon the four dimensions defined in the "ACRL Information Literacy Competency Standards for Higher Education", 2000. The questionnaire was also used to obtain data about student usage of institutional websites and academic libraries of the campus and use of information technologies, such computers, the Internet, social networks and OPACs. These were followed by a set of questions about the students' strategy for finding relevant information, how they determine the quality of identified sources, and how they integrate this information into their knowledge acquiring process. The gathered data will serve as a basis for defining strategy for the Taibah University in term of information in general, and particularly, how to improve skills, abilities and best practices of students using information and information technologies.

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Keywords: *Information literacy, Taibah University, IT competencies, behaviors*

Teaching Information Literacy and Reading Strategies in Fourth-Grade Science Curriculum with Inquiry Learning

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The importance of reading literacy has aroused attention in recent years. In 2006, Taiwan first participated in the Progress in International Reading Literacy Study (PIRLS). The test showed that Taiwanese students ranked last in "reading for interest" (Ko, Chan, Chang & Yu, 2008). In 2011, Taiwan participated in the PIRLS again. Although its rank improved, students' interest in reading still ranked low (Mullis, Martin, Foy & Drucker, 2012). Thus, for enhancing students' reading literacy, more effective instructional strategies should be investigated and designed. Reading literacy is a part of information literacy and they both should be integrated across the contexts of school curricula using inquiry-based learning (Hoyt, 2005; Wilhelm, 2007; Wray, 2012). Research found that students would gradually internalize reading strategies through the process of information literacy which emphasizes posing inquiry questions, seeking, using and synthesizing information (Caldwell, 2002; Chen, 2012; Chu, Tse, Loh & Chow, 2011). Thus, the purpose of this study was to investigate the effects of inquiry-based curriculum infusing with reading strategies on students' information literacy and science learning. According to the National Science Education Standards (NRC, 2000), inquiry is an important teaching method in science. It involves various classroom activities, such as posing questions, making observations, examining books and other sources of information, analyzing data, and communicating the results.

A case study approach was used for this study (Springer, 2010). The study lasted for a semester and was conducted in an elementary school in Taiwan. Information literacy education was taught two periods of time per week. The research site was a fourth-grade classroom. The media specialist and the classroom teacher were the collaborative teachers in this study. The instructional content was the unit of *The Aquatic Creatures* learned earlier in science. An inquiry-based curriculum with infusion of reading strategies was taught by the two teachers. The inquiry activity was designed according to the Big6 model (Eisenberg & Berkowitz, 1999). There were two instruments used for this study. One instrument measured students' reading comprehension and another was used for measuring student achievement in science. Research data collected included interviews, participant observations, documents, and tests. The results showed that information literacy and reading strategies could be integrated into science inquiry using the Big6 model. The students performed well in the stages of information seeking strategy, location & access, use of information and synthesis; however, students' performance on task definition and reflection needed to be improved. Fourth-graders' science performance was also improved through the inquiry learning.

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Keywords: *Information literacy, reading strategies, science, Big6 model*

Methodological Developments in Phenomenography: Investigating Using Information to Learn in the Discipline Classroom

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This paper discusses methodological developments in phenomenography that make it apropos for the study of teaching and learning to use information in educational environments. Phenomenography is typically used to analyze interview data to determine different ways of experiencing a phenomenon. There is an established tradition of phenomenographic research in the study of information literacy (ex: Bruce, 1997; 2008; Lupton, 2008; Webber, Boon, & Johnston, 2005). Drawing from the large body of evidence complied in two decades of research, phenomenographers developed variation theory, which explains what a learner can feasibly learn from a classroom lesson based on how the phenomenon being studied is presented (Marton, Runesson, & Tsui, 2004). Variation theory's ability to establish the critical conditions necessary for learning to occur has resulted in the use of phenomenographic methods to study classroom interactions by collecting and analyzing naturalistic data through observation, as well as interviews concerning teachers' intentions and students' different experiences of classroom lessons. Describing the methodological developments of phenomenography in relation to understanding the classroom experience, this paper discusses the potential benefits and challenges of utilizing such methods to research the experiences of teaching and learning to use information in discipline-focused classrooms. The application of phenomenographic methodology for this purpose is exemplified with an ongoing study that explores how students learned to use information in an undergraduate language and gender course (Maybee, Bruce, Lupton, & Rebmann, in press). This paper suggests that by providing a nuanced understanding of what is intended for students to learn about using information, and relating that to what transpires in the classroom and how students experience these lessons, phenomenography and variation theory offer a viable framework for further understanding and improving how students are taught, and learn to use information.

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Keywords: *Phenomenography, variation theory, information literacy, information use, classroom lessons*

Looking for Information Literacy: Syllabus Analysis for Data-Driven Curriculum Integration

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This paper describes a method for gathering data about a curriculum to inform integration of information literacy instruction. The authors have developed a replicable model for analyzing course syllabi for information literacy learning outcomes. Following an explanation of this model and methods of data analysis, the authors report on the outcomes of their local study, which include enhanced collaboration with faculty in the School of Business. The paper further describes strategies for deploying the model in other contexts.

Facing institutional demands to increase information literacy instruction in upper division business and managerial sciences courses, coupled with limited and declining human resources, the librarians at LIU Brooklyn faced a challenge: how to do more with less. A systematic data-gathering process enabled the authors to transform their approach to curriculum-integrated instruction. The authors began by culling a set of syllabi from instructors in the School of Business. Using a set of content analysis questions developed using the AAC&U Information Literacy VALUE Rubric, the authors evaluated 79 syllabi for information literacy learning outcomes and library use requirements. The authors normed the questions prior to coding to ensure reliability. At the conclusion of coding, the authors established interrater reliability using two methods: joint probability agreement and Krippendorf's *alpha*. The reliable data were then cross-tabulated and analyzed. This paper describes the reasons for using two reliability measurements, and the importance of accounting for chance agreement among raters when calculating interrater reliability. The pilot study also indicated the need for revisions in the initial study design. The authors are addressing these findings in a local iteration of the syllabus analysis involving the School of Nursing, and identify key factors in replicating and revising the study, including adapting the AAC&U rubric for a local context, identifying disciplines and programs likely to be interested in such a collaboration, and the critical role played by a substantive norming process.

The results of the pilot study revealed the most critical points for scalable, curriculum-integrated instruction in the School of Business: a group of 28 courses that could be targeted for in-depth instruction, and eight courses whose outcomes could be best met with less intensive efforts focused narrowly on information access skills. Since the completion of the study, the authors have used the data to expand instruction in the School of Business. These efforts have met with some success, and the authors are encouraged by the response both from teaching faculty and other librarians at the campus who will be replicating this study in future semesters. Rather than approaching faculty and administration with the *assertion* that teaching librarians can add value to their courses and curricula, the gathered data provides *evidence* for this claim, as the authors make the case for institutional collaboration and the need for increased resources for the library's information literacy program.

Keywords: *Syllabus study, instruction planning, data-driven curriculum integration, information literacy*

How Could Library Information Science Skills Enhance Information Literacy in the Tunisian High Independent Elections Authority (ISIE)

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The educational and lifelong approach of information literacy is needed for newly established institutions embodying individuals who are not familiarized with the use of information in political decision making. Our intervention as experts in LIS field within the first High Independent Authority of Election (ISIE) in Tunisia, aimed at educating the members of this institution to make them independent in their daily work in terms of information processing. To achieve this goal, the ISIE, a new-born institution, needs first to install itself and to acquire some experience before facing the citizens. Information literacy in such contexts should follow a step-by-step process allowing people to get familiarized with the new tools and procedures. These steps were summarized by Boekhorst (2003), from the Netherlands, showing that all definitions and descriptions of information literacy can be highlighted in three concepts which can be adopted by ISIE: The ICT concept (the competence to use ICT to retrieve and disseminate information), the information (re)sources concept (the competence to find and use information independently), and the information process concept (the process of recognizing information needs, retrieving, evaluating, using and disseminating information). The ISIE ended the first step of its information literacy process.

In this paper we will describe the methodology followed during the first year of its creation and the difficulties faced during our intervention as LIS experts.

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Keywords: *Tunisian High Independent Authority of Elections, information literacy, political decision making*

Participatory Action Research and Information Literacy: Revising an Old New Hope for Research and Practice

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In this paper we offer some directions towards constructing the basis for a research agenda integrating Participatory Action Research (PAR) into Information Literacy (IL) research and practice. In order to achieve this goal: a) we discuss the pros and cons of using such methodology on IL with the pertinent literature and our own practice as IL researchers; b) we have developed a questionnaire to gather some insights from the research community in this matter; and c) we will start to seek an understanding of the possible contributions that a PAR-IL research agenda can bring to the field. The integration of PAR into IL research and practice is discussed from the three possible methodological stances: quantitative, qualitative, and a mixed methods perspective. Furthermore, it presents some of the pros, cons, hesitations and eagerness that researchers from each of these methodological traditions might have toward the idea of using PAR. Even though PAR is not a very favored method, its use within any methodological stance is quite conceivable and there are good arguments for revisiting it and bringing it forward as one particularly useful voice for IL research and practice. Hence, an analysis of its possible applications into the area of IL research and practice is needed. PAR actively aims to facilitate change and study, analyze and improve individual or groups' practices to achieve a state of betterment. Moreover, PAR stresses the commitment of all participants to the goal of a given study, as they embark on a collaborative endeavor, meaning that the researcher works with the participants from his or her own knowledge and mediating a common understanding from their own knowledge, practices and realities. Furthermore, its goals have been emancipatory and aimed towards the improvement of people's practices and situations. IL, in turn, strives to develop more informed individuals in order to achieve many different purposes, such as: problem solving, decision making, emancipation, for the exercise of active citizenship, overcoming oppression, bridging divides, achieving critical stances, and for lifelong learning. All these purposes have been largely studied since Zurkowski coined the concept in the 1970s. However, even when the 'good use' of information for the improvement of the human being is at the heart of IL, we believe that the bridging of IL with some participatory models has only started to be discovered and an analysis of this possible connection may lead to an improved IL research agenda. As with any other good methodology, PAR has the necessary elements: it is valid if it is systematic, establishes its parameters carefully, and follows its objective closely. Moreover, these methodologies are closely related to a human perspective, what is defined in the literature as 'research with people' instead of a positivist 'research on people'. PAR deals with the rich subjectivity of the human being and it is arguably what it does best. However, some positivist or conductist traditionalists have highlighted the arguments against PAR, such as stating that action researchers do not have statistical skills.

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Keywords: *Participatory action research, information literacy, methodology*

Sustainability of Information Practices and Development of Information Culture

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Recently, in the world and especially in the francophony, information culture[1] has appeared as a new research domain. This research takes into account three main fields: the professional field (information in a professional context), the library science field (the use of libraries and information in the school context), and the mass media field (use of mass media for being every day information) (Le Deuff, 2009).

Nevertheless, this research usually does not pay attention to the durability of culture, to the time factor, and to the way each individual progressively builds her/his own information culture.

First of all, we will provide a definition of information culture (Liquète, 2010); then we will expose and analyze three pillars for a sustainable information culture:

- The use of methods and steps oriented toward the constitution of an external digital memory (connected to curriculum and vocational life). Learning with Personal Information Systems (PIS) is a cornerstone of information culture (Guyot, 2006)
- The ability to know oneself, to identify one's own cognitive style (Liquète & Maury, 2007), and to choose the most efficient style for a given information searching and selecting situation.
- The appearance of new meta-skills forms to be considered in school, university curricula and professional organizations. We will describe 4 complementary meta-skills.

These assessments are based on several field research studies in school and professional environments.

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Keywords: *Information seeking behavior, information culture, school knowledge, sustainability, knowledge construction*

[1] We shall define the "information culture" as a set of skills and of postures allowing a person to identify which information is necessary for her. Information culture bases on the localization, the evaluation and the use of information found in an approach of resolution of problem, individually or in group, ending in a processing and a communication of the selected information.

Information Literacy, Transliteracy and Information Culture Development in France: What the Teacher-Librarian can Change

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A research project on French high school pupils' information practices during project based activities shows how important the educational curriculum is for the development of a real media and information culture construction. While in France, the teacher-librarian is supposed to instruct pupils from middle school to university and accompany them as well as teachers in their search for information, actual situations can vary greatly. Our inquiry shows that uses and attitudes toward information are very different depending on the extent of the intervention and commitment of the teacher-librarian. When a precise local curriculum is applied, pupils tend be to be much more creative and conscious of their own practices and competencies. When no arrangement exists, social and cultural inequalities tend to be prevalent. We are engaged in a research project whose aim is the analysis of high school pupils' information uses and practices that we qualify as *transliteracy*. We observe a specific school situation: supervised personal projects in which groups of pupils make a small interdisciplinary research project on a chosen topic. We take into account the informal, intuitive and yet relevant and efficient information practices of young people. Among our first results, we notice that the extent of the commitment of the teacher-librarian to the pupils' information inquiry and knowledge construction process has a strong effect on their autonomy in the search, selection and use of information and media for their projects. A real cognitive construction of knowledge of information, not only pragmatic skills and useful competencies, requires a positive pedagogic activity. We have been examining, recording and interviewing 150 pupils in groups and individually during their research activity in 3 different high schools. Our research project is based on a qualitative, ethnographic, "ecological methodology" to observe information and pupils' transliterate practices on one hand, and training practices of teachers-librarians on the other hand. Our observations show that pupils' behaviors and competencies, while composite and not orthodox, can be effective. We use the phrase *grammatization of information* to characterize the process of creative learning construction of knowledge and competencies in information seeking and use which leads to information culture or *transliteracy*. The global effectiveness of this process depends on the regime of commitment of the teachers-librarians. Without this commitment, the risk is high for increased inequalities regarding information seeking and use among pupils. This is why the construction of an education curriculum for media and information literacy is vital.

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***Keywords**: Transliteracy, information culture, professional training, media and information literacy, teacher librarian, curriculum on information*

Building a European Policy on Media Literacy: Achievements, Perspectives and Open Questions

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The objective of this paper is to describe how the European Commission has built and implemented an organic European policy on media literacy and to look into current work and future developments.

Media Literacy

The way we use media is changing and the volume of information we get today is enormous. People need the ability to access, analyse and evaluate images, sounds and texts on a daily basis especially if they are to use media to communicate and create content. The European Commission considers media literacy an extremely important factor for active citizenship in today's information society, a key pre-requisite, just as literacy was at the beginning of the twentieth century.

Background

At the beginning of the new millennium, the Commission started a reflection on media literacy within its European Audiovisual policy and the Lisbon strategy. Several policy documents have been published since then, and the role of Member States and the Media Industry in improving the level of media literacy in society was highlighted. It was also recommended that a debate be initiated on the inclusion of media literacy in compulsory educational curricula. Later, within the global political context of the EUROPE 2020 strategy for smart, sustainable and inclusive growth, the Commission stressed that the digital era should be about empowerment of citizens. Lack of background knowledge, literacy or skills should never be a barrier to accessing the opportunities offered by the media and the information society. As the EU is currently falling behind in markets of media services, both in terms of what consumers can access, and in terms of business models that can create jobs in Europe, it is important to address digital and media literacy and competencies as a priority.

Current and Future Work

The Commission asked Member states to promote research on the different aspects and dimensions of media literacy in the digital environment and monitor and measure the progress of media literacy levels, as well as to open a debate on the inclusion of media literacy in compulsory educational curricula. Since then, several studies of media literacy have been carried out and assessment criteria for media literacy levels have been worked out and tested. They are now available and – even if some simplification is needed – ready to be used by Member States in order to implement a first pilot evaluation exercise. Also, an expert group has been established in order to discuss the issue of the inclusion of media literacy in education. Finally, media and film literacy projects may be supported within the future "Creative Europe" programme beginning in 2014.

Keywords: *Media literacy, European policy, European Commission*

The Results Analysis of Information Literacy Survey Conducted in Kemerovo State University of Culture and Arts (Russia)

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The main objective of the paper analyzes the results of an Information Literacy Survey which was conducted among students studying in the field of library and information sphere. The survey was created using LimeSurvey. It was "live" for 10 days. The survey consisted of questions on the research experience, information behavior and information literacy skills. The survey was translated into Russian, and invitations to participate were sent via established email lists to 54 students in the first and the second courses.

The applied research intended to compare and analyze distinctive features in the level of Information Literacy according to the course of the students, their age, gender and Curricula. Various approaches in the educational process of LIS students were reflected as well in the responses.

The paper presents the results of comparison in the basic terms related to Information Literacy, because most of the terms had to be adapted to Russian usage. The specified resources (database, catalogues) which are in a frequent use in Russia were interpreted and adapted as well.

The results of the survey presented in the paper reveal basic distinctions/similarities in the searching of the necessary information and evaluating of searched information for course-related assignments. Responses from LIS students emphasized the importance of using up-to-date resources and "gray literature", and some made recommendations for improving existing services in the formation of a person's Information Literacy. In contrast, some responses focused more on services of specialists in Information Literacy (teachers, trainers, librarians).

The paper's conclusion presents assessment of the survey results and diagrams the percentage scale demonstrating Information literacy skills.

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Keywords*: Information literacy, survey, assessment, evaluation, information literacy skills*

Do We Have What It Takes? - The Finnish Secondary School Curriculum and Information Literacy

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The lack of sufficient information literacy skills can be witnessed in studies both worldwide and in Finland (Kiili, 2012; Alexandersson & Limberg, 2009; Lupton, 2004). Finland is currently reviewing the core curriculum. The PISA scores that in Finland have always been considered outstanding are now showing a slight downward trend in reading and especially in information seeking skills.

This paper examines one empirical section of my doctoral dissertation. The dissertation examines the concept of information literacy in the Finnish core curriculum (National Core Curriculum for Basic Education, 2004), how information literacy is present in the curriculum and how the concept of information literacy is understood by the executers of the curriculum and the different actors (teachers, principals and school librarians) in the Finnish secondary school.

The aim of the thesis is to see how the information literacy contents found in the curriculum relates to the information literacy model of Christine Bruce "7 faces of information literacy" (Bruce, 1997); and how the actors understand the term information literacy. It will also explore whether the conceptions of the actors correspond to the one in the curriculum or whether there are inconsistencies.

This paper tackles the discourse analysis of the core curriculum. This research paper is answering the first research question of the dissertation: 1. how are the aspects of information literacy presented in the national core curriculum, and how do the findings compare to the information literacy definition chosen in this thesis?

The discourse analysis was selected as a method because the purpose is to see whether different discourses are found between the curriculum and the actors, and between the actors themselves. The discussion part draws conclusions about the presence of information literacy in the curriculum. The core curriculum presents issues of information seeking and information literacy skills but is lacking in definitions and in pursuit of promoting higher order thinking skills.

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Keywords: *Information literacy, curriculum, learning, Finland, teaching, secondary school*

Information Literacy and the Public Library: Danish Librarians' Views on Information Literacy

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This paper reports on the results of an empirical study of Danish public librarians' conceptions of information literacy and user education in order to support and optimize lifelong learning of library users. This is relevant because previous research primarily has investigated information literacy instruction in educational settings (e.g., Rader, 1991; Bruce, 1997; Maybee, 2007), and focused less on information literacy of the public library. Fact is, the use of the public library has changed due to the Internet (Kinney, 2010). The Internet is nowadays a widely used source of information for learning. The public library plays an important role in supporting the learning process in that it provides a setting for informal learning, and flexible learning opportunities along the line of self-directed lifelong learning (McNicol & Dalton, 2003, p. 5). The study builds on data from 12 interviews of purposely selected public librarians and a large-scale e-mail survey (questionnaire). The e-mail survey contained 28 questions and was sent to all public libraries (98) in Denmark, and resulted in 986 responses. The interviews were about the public librarians' understanding and views of the relations between information literacy, lifelong learning, and user education in the public library. The interviews were conducted according to the phenomenographic approach (e.g., Marton, 1986). The interviews show that the public librarians consider the public library an important place for learning, but also that they do not share a common understanding of the concepts of information literacy and lifelong learning. From a phenomenographic point of view the variation is desirable as it expresses multiple understandings that, combined, enrich and enlarge the overall understanding of information literacy and lifelong learning. The survey more specifically addressed the public library's instruction of information literacy of high school students as the target group. The survey reveals a diversity of user education in the public library with a strong focus on the individuality of the user, and furthermore, that hands-on courses are preferred as the pedagogical form.

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Keywords: *Information literacy, lifelong learning, public library, user education, information literacy instruction*

The "Information Literacy Self-Efficacy Scale" and the Medical Curriculum at Ghent University

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Information Literacy (IL) is defined as "a set of abilities requiring individuals to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information" (Association of College and Research Libraries, 2000). Information skills are essential for a successful academic track. Persistence or resilience is crucial for information problem solving, self-regulated learning and lifelong learning (Kurbanoglu, Akkoyunlu & Umay, 2006). According to Bandura (1977) self-efficacy (SE), or an individual's belief in her/his own ability to succeed in a specific task, is an important influencing factor of performance. Consequently, education should be focused on both the development of IL skills and the attainment of a high sense of SE. Moreover Kingsley (2011) advised incorporating IL training early in the curriculum, to help students develop their IL skills and SE. The purpose of this study was to investigate the relationship between the learning outcomes of IL training and SE within a medical curriculum.

In 2012-2013, all medical students (n=1253) from year 1-5 at Ghent University were invited to participate (response rate of 77.5%). SE was measured by the standardized Information Literacy Self-efficacy Scale (ILSE) developed by Kurbanoglu, Akkoyunlu & Umay (2006), covering mandatory IL skills in a general context of IL. ILSE was complemented with 10 items about IL skills specific for medical sciences. Items were rated on a scale of 0–100. Simultaneously, IL skills were evaluated by a Progress Test in Information Literacy (PTIL), consisting of 30 questions measuring basic to advanced skills of IL within a medical context. All tests were conducted anonymously.

Mean scores on ILSE in study year (SY) 1-5 were 49, 61, 59, 64 and 68. PTIL scores were 39.10%, 53.10%, 48.95%, 48.35% and 48.62%. Spearman correlation (r_s) was used to evaluate the consistency between "ILSE" and "PTIL" in SY 1-5. We notice in SY 1-4 a positive and significant correlation and in SY 5 a negative and non-significant correlation ($r_{s=}$ -.104, p=.198). The curriculum provides education in IL skills till the 3rd year. Results of the ILSE questionnaire and the PTIL indicate the necessity for continuous integration of educational intervention, this at each level of the curriculum.

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***Keywords**: Self-efficacy, information literacy, medical curriculum, higher education, progress test*

Same Difference? A Comparison of Information Literacy Skills of Australian Undergraduate and Postgraduate Information Studies Students

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Information literacy skills are an important graduate outcome for all university students and library staff are involved in developing these skills (Salem & Radcliff, 2006). In the wider context, information literacy skills enable individuals to successfully negotiate many activities and interactions required in their personal and working lives, and "Information Literacy lies at the core of lifelong learning" (Alexandria Proclamation, 2006, p. 3). For graduates of information studies courses, the importance of information literacy skills is twofold. They require these skills for the same reasons as their peers in other disciplines and the skills are central to their professional role in supporting and assisting others to locate, evaluate and use information in library environments (Leibiger & Scheweinle, 2008). This paper examines the information literacy skills of Australian information studies students in order to inform educators about their students' experiences and practice, and identify areas of need. The results of the research will enable the alignment of learning and teaching practices with these needs. The paper focuses on whether the information literacy skills of undergraduate students (who have had no previous university experience) are different from the information literacy skills of postgraduate students (those with previous university experience), a focus that has attracted very little research in the past (Conway, 2011).

Based on a questionnaire created for the Project Information Literacy initiatives (Head & Eisenberg, 2009), this research surveyed undergraduate and postgraduate information studies students at two Australian universities: Curtin University and Charles Sturt University. Approximately 1,300 students form the population across both universities. Students enrolled in the universities' courses were invited to participate in the online survey between March 4th and April 5th 2013. The survey was comprised of mostly closed (categorical and Likert scale) questions relating to students' experience of different assessment types and their information seeking and evaluation practices. An open question at the end of the survey was included to encourage comments about the survey and the topic more generally. Quantitative data analysis was undertaken to produce descriptive statistics, frequencies and cross-tabulations, which would identify the following: Information literacy skills of information studies students at various stages of progress enrolled in two Australian universities, and similarities and differences between the information literacy skills of undergraduate and postgraduate coursework students.

The results of the analysis will inform educators across the Australian information studies higher education sector to facilitate curriculum development in order to deliver courses that meet the information literacy skills needs of their students.

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Keywords: *Australia, undergraduate information studies students, postgraduate information studies students*

Methodological Literacy of Doctoral Students – An Emerging Model

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The goal of the paper is to determine methodological literacy as part of information and research literacy. Based on the information literacy concept using information practices, values and understanding, a new model of information literacy for a special group of doctoral students was developed. This model of information literacy covers skills and knowledge for managing research projects, social networking with experts, communication with supervisors, teaching skills, deep analytical and synthetic information processing, social and moral literacy, and creativity (e.g. project management, publishing strategies). The starting points are represented by the models of the 7 faces of information literacy (Bruce, 1997 and SCONUL), guided learning (Kuhlthau et al, 2007), and digital literacy (Bawden & Robinson, 2012).

The theoretical concept of methodological information literacy is based on research projects on information behavior of PhD. students including relevance assessment (Steinerová, 2010). The context of our new research project is focused on cognitive traveling through the web. A part of the project concentrates on information needs and activities of doctoral students as young researchers and teachers. The framework of the research is determined by different cognitive, affective contexts, information tasks, social and organizational contexts. The goal of this qualitative research is to model information skills and interactions in research behavior, information use, information production and social media. The research instrument for gathering data was designed, using methodological guidelines for semi-structured interviews including 28 questions. Altogether, 15 doctoral students from different disciplines participated in semi-structured interviews. Initial results confirmed differences in information handling in disciplines (types of research) and the need to pay more attention to methodological training of doctoral students.

In conclusion, a model of methodological information literacy and recommendations for its improvement with doctoral students are presented. Based on research in information ecology we recommend, especially, closer work with basic concepts in disciplines (concept mapping and terminology), advanced information seeking and use skills, visualization of knowledge and basic expert information sources in disciplines, and interactive communication with supervisors and colleagues. Experience with methodological workshops for doctoral students in library and information science (ca 50 students since 2002) revealed the need to emphasize knowledge of existing methodological paradigms in the disciplines. Knowledge of successful research methods, models and case studies are also important for methodological literacy. Final recommendations include cultivation of information styles, improvement of skills in deep synthetic information processing, managing research projects and developing the focus of the research. These findings and features can be mapped into new services of digital libraries and information gateways, and support creativity and innovations within special disciplines.

Cognitive information processing can also be applied to proposals of intelligent knowledge organization tools for PhD. students. The model can help develop features of digital libraries, especially faceted and concept searching, contexts, collaborative searching, social networking and discussion forums.

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Keywords: *Methodological literacy, doctoral students, modeling interactions*

Information Literacy a Cornerstone of Democratic Society: A Component of an Information Policy

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During the last two decades, information literacy has become a value-added research theme for many colleagues, and also a transversal topic in the course syllabi of many library and information studies schools worldwide. Many declarations were made between 1997 and 2012. The Havana Declaration of 2012, after the IL – INFOLIT /Ibero America Seminar of 19 April, proposed fifteen information literacy actions. In this sense, a national information policy could be considered a cardinal point in accomplishing those proposals, in order to have programs that can reach those goals at short-, mid- or long-term. According to the 15th action of the aforementioned declaration ("Multi-literacy has to be promoted as collaborative work between different agencies"), this consists of reading and writing skills, functional literacy, computer literacy, visual/image literacy and information literacy. Taking into account the above-mentioned, citizens must gain two basic skills: computer and information literacy, which will drive them to the next step, political literacy (Swindells, 2008). Information literacy programs will give them a broader notion to seek those gateways and information systems in order to know more about their community, their laws, customs, norms and facts. This process will begin with acquiring basic skills. These skills will provide citizens with the opportunity to access many information systems. Each of those systems has different kinds of stories. Their contents make visible a variety of social roles, according to their framework, which, in turn, will provide a better view of each social practice. Following this idea, a citizen can undergo changes in his/her social practice or can modified his/her attitude. For the construction of a democratic society, the citizenship has to become aware of political life and those social changes in the society. The next step is to trace a plan of action for promoting information policy, more specifically, an information literacy policy; an information literacy and political literacy program related to political information and political knowledge, so as to build a democratic society where participation is mostly of a well-informed citizenship.

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Keywords: *Information policy, citizenship, information literacy, political literacy*

Between Information Seeking and Sharing – Use of Social Media in a Young Learner Context

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Recent research has shown that use of social media for course work is increasing (Educause Center for Applied Research, 2011). Further, social media with no restrictions of time and place have shown potential to support learning (Hrastinski & Aghaee, 2012; Hyldegård, 2010; Hyldegård et al., 2011; Kim; Yoo-Lee & Sin, 2011). However, we still only know little about how social media are used to support educational learning and their role in that context. When posing the question of information literacy, recent studies have demonstrated that the positive myths about the digital natives seem to have been overrated (Barlett & Miller, 2011; Connaway & Dickey, 2010; Connaway & White, 2012). More research and inquiry is simply needed into the dynamic nature of digital information behavior of young people and their information literacy skills to support learning (Large, 2006; Sundin & Francke, 2009). This presentation addresses information seeking behavior among young learners and ,in particular, their use of social media in an educational context. The focus is on young learners' use of social media as information sources in the intersection between information seeking and sharing of user-generated content: Which activities are associated with social media as information sources? What are the motivations and constraints for using social media as information sources? The presentation is based on a systematic review of a selected number of core LIS journals in addition to results from recent research projects on students' and young peoples' information behavior. The theoretical framework presented by Connaway & White (2012) dividing users and learners into digital residents or visitors is used to characterize "young learners". The research questions are discussed in relation to the learning potential associated with social media as information sources and the implications for information literacy. Many web tutorials have been developed with the aim of guiding students' information seeking, research and writing behavior, hence providing a platform for building information literacy (IL) knowledge and skills. However, only minor attention is generally paid to social media and Internet searching by the developers. Further, use of social media requires a meta-literacy approach by educators to guide young learners' use of social media. The aim of the paper is twofold; to further inform librarians and teachers in design and IL, and to serve as a steppingstone for more comprehensive and systematic research on social media in a secondary school context.

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Keywords: *Information literacy, social media, information seeking behavior, young learners*

Fortifying the Pipeline: An Exploratory Study of High School Factors Impacting the Information Literacy of First-Year College Students

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Information literacy—the ability "to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information"—has been widely and increasingly cited as an essential competency for college success, for the workplace, and for life. Information literacy best practice and standards state that students optimally develop this skill set through immersion in the research process—often and over time—and this proposition is also supported in the scholarly literature. Additionally, best practice emphasizes that students further develop these skills through exposure to problem solving and higher-order thinking activities—a teaching style that best matches that of constructivist learning theory. The purpose of this study was to explore the relationship between a sample of first-year college freshmen students' high school experiences that are developmentally related to information literacy competency and their scores on the iSkills assessment, an assessment developed by the Educational Testing Service (ETS), which "tests the range of ICT literacy skills aligned with nationally recognized Association of Colleges & Research Libraries (ACRL) standards". Participants in the study were drawn from first-time college freshmen, who attended and graduated from high school in 2011 and enrolled at the University of Nevada, Las Vegas for the Fall 2011 semester. These students self-selected into a program designed for academic success. Ninety-three students were surveyed, took the iSkills assessment, and agreed to provide access to background data. Hierarchical multiple regression analysis was utilized to predict how much of the variance in iSkills scores (dependent variable) can be explained by theoretical variables (independent variables of core GPA, number of honors classes, and number of research projects or assignments in high school), while controlling for demographic and other subject variables (i.e., gender, best language, ethnicity, and type of admission—alternate admit/exploring major). Through the hierarchical multiple regression analysis, four variables predictive of a significantly higher score on the iSkills assessment at the $p < .05$ level were identified. Among background variables, a student's best language, and to some extent, race, are significant predictors of his or her iSkills assessment score. Among the theoretically important variables, students' cumulative core high school GPAs, as well as their curricular tracks (number of honors, etc. classes taken) explained a significant amount of the variance in students' iSkills assessment scores. Implications of these findings for theory, practice, and future research are discussed.

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Keywords: *ICT literacy, information literacy, iSkills*

Assessing Information Literacy Skills among Undergraduate Students at the Alexander Technological Educational Institute of Thessaloniki

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Purpose and Methodology

Although international organizations have developed standards for Information Literacy (IL), little is known about the extent to which undergraduate incoming students of the Alexander Technological Educational Institute (ATEI) of Thessaloniki meet these standards. The aim of this study is to assess IL skills among first year students at the ATEI of Thessaloniki.

Total ATEI population is 22.494 students. The number of first year students registered is 3.055; therefore a sample of 147 first year students was considered adequate to provide satisfactory results for the first year students' population. 5 Academic Departments out of the 5 Schools of ATEI were represented in the survey (about 30 students from each Academic Department that participated). In order to assess the IL skills of the students, a specific methodological approach was developed: 11 variables were formed under 5 specific themes according to the ACRL (2000) IL standards. A questionnaire--for collecting quantitative data--was designed according to the 5 specific themes and the 21 variables. The questionnaire was answered by the participants before attending an IL Library Seminar. Qualitative data were gathered out of 10 interviews provided by (a) members of Faculty and (b) students, coming from the same Academic Departments. A third online questionnaire was designed and answered by sixty-seven (67) students who had attended an IL seminar, aiming to gather data on assessment of IL seminars.

Findings and Value

Results indicate that there are a significant number of students that have limited knowledge, or no knowledge, of the basic elements in a research process and in delivering a research paper. Very low percentage of correct answers (9.52%, 10.20%, 11.56%) were indicated in the fields of "developing a search strategy / executing a search" and "legal / ethical use of information". Students' ability to retrieve information is deteriorating due to their insufficient skills in conducting searches in library catalogs and databases, their difficulty in reading citations and their lack of knowledge in formulating search strategies. Insufficient knowledge of legal and ethical use of information and lack of knowledge in the field of using bibliographic styles for including bibliographic references in-text or conducting a reference list implies the risk of plagiarism, which is also indicated by the Faculty. It is worth noting that according to the results of this survey, students think they are more Information Literate than they are in reality.

The results indicate the status of IL Skills among incoming first year students at ATEI of Thessaloniki and therefore propose improvements in (a) existing IL seminars and (b) the web-based IL program "Orion". The aim is to educate first year students' to be information competent, according to their IL needs as demonstrated in this particular survey. The survey also proposes a specific methodological approach for assessing IL skills of incoming students in other universities.

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Keywords: *Information literacy assessment, Alexander Technological Educational Institute of Thessaloniki, Greece, ATEI of Thessaloniki Library, IL skills*

Information Literacy of LIS Students at the University of Zagreb: Pros or Just Average Millennials

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The information literacy (IL) movement has grown dramatically over the past quarter century. Although the concept has entered the discourse of different disciplines, domains and landscapes, there is little doubt that IL has been the most explored and analysed in the educational sector. In the higher education sector, the emphasis in IL initiatives and curricula is on acquiring, developing and demonstrating individual skills and competencies, which will support independent lifelong learning, critical thinking and problem solving. For LIS students, however, the rationale and goals underlying IL integrated in the course of their studies is much more substantial and wider. In addition to become information literate themselves, LIS students have to be fully aware of the importance of IL as a concept, understand its relevance in contemporary societies and have to learn about main aspects of teaching IL. Regardless whether LIS students have attained information skills and practices by studying library and information science, or whether they have been attending IL courses, the question of transferability of IL to learning situations remains open. This paper presents a sub-study that explores the transferability of IL competencies to the overall research experience of LIS students and the application of IL competencies in fulfilling course assignments.

The survey of LIS students was conducted at the Department of Information and Communication Sciences, Faculty of Humanities and Social Sciences, University of Zagreb. It is part of wider, international survey involving 21 countries with the aim of comparing LIS students' IL in different countries and societies. The survey instrument was the same for all the countries – an online questionnaire with 17 questions on IL. The purpose of the main survey conducted on an international level is to find out about LIS students' research experience, information behaviour and information literacy skills, as well as to correlate them with the students' status, their age, gender and GPA. The questionnaire was sent to 498 available e-mail addresses of undergraduate students at the Department of Information and Communication Sciences, University of Zagreb. The response rate was 40% (199 answers, 110 of them complete answers).

Research questions pertained to the assignment types of LIS students, attitudes about the initial search process for course related assignments, evaluation of search results, study practices applied during course-related assignments, priorities in completing assignments, tools they use etc. In the last question, students were asked if they had any comments related to the topic and/or to the questionnaire. According to the comments, the survey has already been useful for participating students.

Results of the survey will provide insight into the transferability of IL competencies applied for fulfilling course assignments of LIS students. IL competencies of this group of students is often assumed, but not explored. Such insights can be useful for teachers, mentors and librarians to determine LIS students' real level of IL, evaluate approaches and revise existing approaches in teaching IL, if necessary. Furthermore, such insights will contribute to research issues of IL transferability, and specifically address the question of whether courses that raise awareness and impart knowledge about IL contribute to its efficient transferability. As an added value of this paper, IL of LIS students is compared to IL of average millennials, based on scholarly literature.

Keywords: *Croatia, information literacy, LIS student, transferability*

Information Literacy and International Capacity Development Initiatives in Life Sciences: AGORA, OARE, HINARI, ARDI (Research4Life - R4L)

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Background and Motivation

AGORA, OARE and HINARI are associated global initiatives in the life sciences which were founded with the purpose of bridging the digital divide by assisting less developed countries in accessing high quality scientific information, thus enhancing local knowledge, research and development, and providing training for the advancement of information literacy and ICT competencies. They are aimed at researchers, academics, librarians, and other participants in the transfer of knowledge. AGORA (Access to Global Online Research in Agriculture) supports access to information related to food, agriculture, human nutrition, environmental science, and similar. HINARI (Health InterNetwork Access to Research Initiative) facilitates access to biomedical/health information. OARE (Online Access to Research in the Environment) is dedicated to research in environmental issues. These three unique sister programs have recently been joined by ARDI (Access to Research for Development and Innovation), and are now referred to under a collective name, Research4Life (R4L). An important aim of these initiatives, besides providing low-cost or free access to journals, databases, and related reference materials, is to empower local experts to find informed answers themselves. Implementation of the initiatives is thus usually accompanied by capacity development missions, such as information literacy (IL) courses, library workshops and similar training programs.

Objectives

The paper aims to provide an extensive review of past development within the frame of the above initiatives. It specifies motivation, the role of international organizations (United Nations), such as WHO (World Health Organization), FAO (Food and Agriculture Organization), the United Nations Environment Programme (UNEP), the World Intellectual Property Organization (WIPO), supporting educational institutions (e.g. libraries at Yale University, Cornell University), international publishers of high-quality peer-reviewed scientific journals (e.g. Elsevier, Springer, John Wiley & Sons), and international societies/organizations which are instrumental in the domain of scientific information as originators of journals, databases and similar platforms (e.g. CAB Abstracts, PubMed, Scopus). It assesses progress of the initiatives and reviews how capacity development (capacity building) and information literacy-related schemes (information competency, media literacy, computer literacy, ICT literacy, retrieval/search skills) have been reflected in the initiatives, along with some emphasis on the role of libraries. It also places some special emphasis on the advancement of information-competencies of educators who are involved in the promotion of initiatives, or 'training the trainers', e.g. librarians and other information professionals who are instrumental in promoting information literacy. Potential challenges and limitations are examined, such as insufficient infrastructure. It highlights the principles and the structure of training materials, and presents some activities in selected countries which are eligible for assistance through the initiatives.

Conclusions

The four initiatives (AGORA, OARE, HINARI, and ARDI) represent a unique international collaborative endeavor in bridging the gap between the developed and less developed world in the very important domain of scientific research and development. Mere access to information resources and information literacy utilities has advanced towards capacity development in order to empower individuals and institutions to face future challenges, and enhance local, regional and, very importantly, global knowledge, through a now joint project that has, quite appropriately, been termed Research4Life (Research for Life).

Keywords: *Information literacy, information competencies, capacity development, digital divide, role of libraries, information professionals, international assistance, training, knowledge transfer, agriculture, medicine, environmental sciences, developing countries*

Transforming Information Literacy Knowledge and Skills across Practices

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Information literacy research has in recent years been inspired by practice theory, and an understanding of information literacy as a social practice has emerged. Using practice theoretical approaches research in information literacy (e.g. Lloyd, 2010; Sundin & Francke, 2009) has shown that information literacy skills and knowledge are context specific and closely related to social practices. As a consequence, the process of learning and becoming information literate is then seen as tied to specific practices and social sites of knowledge. However, if individuals develop knowledge and information skills in different ways and in different contexts, then how can we understand and analyze the possibilities and constraints related to transforming this situated knowledge from one context into another? Individuals do not solely belong to one practice at a time, but instead they are simultaneously involved in many different practices in which they engage in a variety of ways (Wenger, 1998).

The aim of this presentation is to outline a theoretical framework for discussing the possible transformation of information literacy knowledge and skills from one practice to another. Theoretically this framework takes its point of departure from a practice learning perspective (Lave & Wenger, 1991; Wenger, 1998). Here knowledge is not perceived as being transferred when individuals, for example, move from task to task, but instead, patterns of participatory processes develop across various contextual settings. Knowledge is not taken to be a personal attribute, but instead individuals are seen as carriers of practices (Shove, Pantzar & Watson, 2012). To capture this movement between practices, the concept "trajectories of participation" (Lave & Wenger, 1991) is introduced initially to describe learning as a continuous process, developing both within and across practices. As individuals participate in different practices in different ways, they will develop a variety of trajectories in different directions as a result of personal and inter-subjective negotiations of meaning in social practice. Therefore secondly, the implications of transferring, transforming and recontextualizing knowledge and skills across different practices is analyzed and discussed. Finally, the theoretical framework is illustrated empirically by some brief examples taken from an ongoing research study among upper secondary school students. The study focuses on investigating the students' development of information literacy and study competences in the transition between upper secondary school and higher education. Eight students are followed in a qualitative study during their final year in upper secondary school and their first year after joining a higher educational study program. The presentation contributes some preliminary insights into how we can understand the transformation of information literacy knowledge and skills from one practice into another. This approach might broaden our understanding of information literacy and of how individuals become information literate, and thereby also contribute to discussions of information literacy education.

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Keywords: *Information literacy, practice theory, trajectories, students, study competences*

Information Literacy Competency of LIS Students in SULSIT with a Special Focus on Intellectual Property

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This paper presents results from a survey in the State University of Library Studies and Information Technologies (SULSIT) as part of an international Information Literacy Survey on Library and Information Science (LIS) students". This multi-national (more than seventeen countries are involved) survey aims to determine the research experience, information behavior and information literacy skills of LIS students. The Survey instrument is web-based (LimeSurvey).. In SULSIT the survey covered students from bachelor, master and PhD programs. 122 respondents answered the study.

A study of research experience, information behavior and information literacy skills of LIS students in the SULSIT had not been done until now. The invitation to join in this international study was an important stage in the development of the SULSIT, as it is in a period of program and institutional accreditation. Depth analysis of the Information Literacy Survey of LIS students will allow the academic staff to reach conclusions which will help to update the curricula and programs and to enrich teaching methods and improving the quality of education.

The first section of the paper will present all findings and theoretical and methodological implementations. The second section, our research interest will focus on the problem of Intellectual Property Competency as part of the Information Literacy of LIS students. LIS bachelor and master programs offered in Bulgarian universities will be analyzed in relation to knowledge and information on intellectual property. We will make comparisons between some findings from 'Information Literacy Survey of LIS students' with data obtained from a survey conducted in a research project "Analysis of the common practices in the use of products of Intellectual Property in University Information Environment" (2012-2014; DMU 03/3). This survey has been conducted among students in nine Bulgarian universities accredited in the educational and professional field called "Public Communication and Information Science" (Trencheva, 2013).

The goal is to reach conclusions and recommendations for optimizing the role and quality of library and information education in preparing future professionals in library and information and cultural affairs, according to the new demands of the information and digital reality, and Copyright and legal issues (Trencheva, Todorova & Trenchev, 2012). The findings from this paper result from research activities in the frame of the research project "Copyright Policies of libraries and other cultural institutions", financed by NSF of the Bulgarian Ministry of Education, Youth and Science, № DFNI-K01/0002-21.11.2012.

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Keywords: *LIS education, information literacy, intellectual property*

Teacher's Role as the Facilitator of Collaborative Learning in Information Literacy Assignments

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Motivation and objectives. Group work assignments are commonly used in the schools' information literacy instruction. It is believed that students enhance their learning through collaborative knowledge construction (Scardamalia & Bereiter, 2006; Stahl, 2011). Unfortunately, in many cases student groups hesitate to collaborate. Instead, they divide the work into individually performed subtasks where the gains of group interaction are lost.

In our recent study on Wikipedia writing as an information literacy assignment, we observed a remarkable difference in collaboration activity between two classes of the same school (Sormunen, Tanni, Alamettälä, & Heinström, 2013). This finding motivated us to analyze in detail how the design and implementation of collaborative assignments affects collaborative learning behavior. In particular, we were interested in the role of the teacher in facilitating students' learning.

Research questions: 1) Were there differences between actively and less actively collaborating classes in the instructional role of teachers: a) In which activities did the teacher support students? b) What kind of support was given? c) Who was the primary initiator of interaction? 2) Were there differences between the actively and less actively collaborating classes in students' learning experiences?

Data collection: The data was collected in two upper secondary school classes of 59 students writing a Wikipedia or wiki article in groups of three to five members. Student groups were interviewed both during and after the writing project. The teachers of both courses, Finnish history and Finnish literature, were interviewed before and after the courses. In addition, students individually filled out a post-questionnaire about their project experiences.

Findings: The students reported that the teachers' interventions dealt especially with controlling progress made in the project, planning the article, and writing the article. Some help was also given in relation to finding information sources. Support related to assessing and reading sources was very rarely mentioned. In literature, the teacher was much more actively interacting with students to control their progress in the project, e.g. by requiring progress reports and commenting on students' preliminary texts. The history teacher relied more on written guidelines and the students' own responsibility. The students were found to collaborate more intensively in the literature class and had more satisfying learning experiences.

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Keywords: *Information literacy, learning assignments, group work, collaboration, teachers*

Strategies to Assess Web Resources Credibility: Results of a Case Study in Primary and Secondary Schools from Portugal

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Methodologies and criteria to assess credibility have undergone great changes with the availability of overwhelming amounts of information on the Internet. The increasingly simplified access to information, in time and space through mobile devices, also changed the means of assessing credibility. In this context, information origin, its quality and reliability are increasingly difficult to establish, and all the assessment processes and criteria that may help individuals to choose information become more relevant.

In this paper, three approaches for the assessment of credibility in a web environment will be discussed, namely the checklists model (Flanagin & Metzger, 2007), the cognitive authority model (Fritch & Cromwell, 2002) and the contextual model (Meola, 2004).

The skill to evaluate information credibility is part of all information literacy frameworks and has been the subject of numerous empirical studies focusing on different types of social groups, especially in the USA, Finland and the United Kingdom. However, in Portugal, this aspect has been little explored. The aim of this case study is to provide a better understanding of the strategies that children and young Portuguese (11-19 years) consider relevant to assess the credibility of information sources available on the web.

The case study analyzes the results of a survey administered in June 2012 to 195 students, from elementary and secondary schools in a municipality in Oporto district (Portugal). The practices that young people and children claim to use regarding the use of criteria for web resources selection will be presented. In addition, these results will be discussed and compared with the perceptions that these respondents have demonstrated for the use of criteria to establish or assess authorship, originality, or information resources structure. These results will be also discussed and compared with the perceptions that these respondents have demonstrated for the elements that make up each of these criteria.

According to the results, it seems that the respondents make a weak use of authorship, including authors name and credentials, as a way to assign credibility to information sources in a digital environment. Despite the fact that the sample integrates the so called "copy & paste" generation, the respondents refer to originality as a quality they value significantly in trying to use resources where links, authors and image references are expressed correctly. To evaluate originality, the respondents also use positive ratings by other websites about the information resource they intend to use. Regarding website structure, the sample evaluated usefulness of the website map, the browsing functionality and the content's organization in blocks according to thematic categories.

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Keywords: *Information credibility, information evaluation, young information behavior, information literacy*

Information Literacy Competences of LIS Students in Switzerland – a Case Study

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In the last decade, discussion of Information Literacy (IL) found its way into Switzerland, as well. The increased interest in this subject resulted in projects for developing standards and concepts, as for example, the Swiss Information Literacy Standards. Although studies are conducted in this field, little research has been done about information literacy among Library and Information Science (LIS) students.

In order to obtain more insights into the Swiss situation and in the context of the International Information Literacy Survey of LIS students, developed by the Information Science Department of Hacettepe University in Ankara, the School of Business Administration in Geneva has conducted a survey in both Swiss Universities of Applied Sciences which offer undergraduate programs in Information Science, namely the University of Applied Sciences in Technique and Economy in Chur, and the above mentioned school in Geneva. In this context, an adapted online questionnaire, based on the general questionnaire of the international IL-survey, which had been created with the Open Source Software LimeSurvey, has been sent to 290 Bachelor students. Adaptations have been made in regard to the evaluation scale, the organization of the Bachelor curriculum as well as the survey language. As one university is situated in the German-speaking part and the other in the French-speaking part of Switzerland, the questionnaire has been translated into French and German. All participants have been contacted by mail and the survey was accessible during a time period of three months. The response rate is of 17%.

At this time, the present paper, starting with a state of the art description of the information literacy standards, concepts and frameworks within Switzerland, and putting a special interest on Universities of Applied Studies that offer an Information Science curriculum, aims to give a statistical result review of the Swiss Information Literacy Survey. The findings presentation concentrates first on the question of whether or not a statistical significant change is visible between the different semesters of the Bachelor curriculum, and tries, if Yes, to give possible explanations for them. In a further step, an analysis is done in regard to the participants' 'abilities in six areas, based on the Swiss IL-standards – information need, information retrieval, information assessment, information organization, information application, and responsibility within information society – as well as in regard to the Information Literacy Competence Grid that has been established in Switzerland. This grid aims to define a person's position in Information Literacy - Beginner, Advanced or Expert - and the learning outcomes that come along with every level. In doing so, the authors suppose that at the end of a Bachelor program, a student should have the Beginner's status. In this way, the Swiss LIS-students' level in Information Literacy are deduced and differing topics are identified which will deliver starting-points for improvement.

Finally, the conclusion gives room for recommendations within IL-education in the Swiss context in alignment with the six abovementioned areas.

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Keywords: *Information literacy of LIS-students, information literacy and LIS-education, information literacy in different cultures and countries*

A Bibliographical Overview of Copyright Literacy as a Key Issue in Memory Institution Management

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The ability to use information within legal and ethical boundaries is an important component of information literacy. With an abundance of available information - both online and in digital format – it is easy to reproduce copyright protected works and incorporate them in one's own projects, thus claiming something different and new. Modern technologies of scanning and reformatting increase opportunities for access and replication of authors' works. The contemporary consumer of information needs to be informed and educated about the nature of intellectual property rights. The report presents a summary bibliographical review of publications on the subject of Copyright Literacy and Intellectual Property Competency. Further, the report presents bibliographical review of copyright policies of library and cultural institutions and the current copyright regulations affecting the provided services in cultural institutions, as well as proposals on exceptions and limitations for libraries, educational institutions and archives.

The scientific publication discusses the issue of Copyright Literacy as a key element in the management of memory institutions (libraries, museums, archives etc.) in the context of the digital information environment, and includes issues regarding law enforcement and the use of open access documents and protected authorship. Further, the report summarizes data found in various types and formats of publications on the topics, and its geographical scope includes publications from Bulgaria, Russia, some countries in Europe, and North America. The study is part of a project "Copyright policies of library and cultural institutions", № DFNI-21/11/2012 K01/0002 by SRF at the Ministry of Education, Youth and Science. The bibliographical review covers the main subject areas: 1. Copyright and Related Rights, Intellectual Property; 2. Copyright Limitations and Exceptations for Libraries and Archives; 3. Library Copyright Policy (sub-themes: Library services that relate to copyright; Use of library resources that relate to copyright; Copyrighted content; Copying of copyright materials (photocopying, printing, downloading); Inter-library document supply for end-users; Preparation of course packs and e-learning content and services; Digitization of library materials); 4. Information Literacy, Copyright Literacy; 5. Information Law, Piracy, Plagiarism, Counterfeiting, Copyright Conventions and Directives; 6. Public Domain, Orphan Works, Out-of-print works, Traditional Cultural Events; 7. Open Access, Open Educational Resources, Repositories of Scientific Publications, Licenses, Fair use. The sources listed include monographs, collections of articles, electronic publications for the period 2003-2013, searched in publishing catalogs, catalogs of scientific and university libraries, free repositories and electronic libraries, and databases and electronic platforms with paid access.

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Keywords: *Library copyright policy, copyright limitations and exceptations for libraries and archives, copyright literacy, information literacy*

Subalternity, Civic Literacy and Information Literacy

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In her recent novel "Behind the beautiful forevers" journalist Katherine Boo describes the struggle for survival of a dozen of people from Mumbai undercity Annawadi. Mumbai "undercitizens"' struggle for survival requires a set of basic skills enabling participation at and overcoming the Annawadi community. The first question to be answered is whether these skills can be compared to those composing civic literacy, basically, as a means of participating in running and preserving a polity at the local, as well as at the federal or national level. The next question to be asked is how Annawadi survival skills match or differ from civic literacy, more specifically identified as knowledge of the concepts of democracy, justice, equality, citizenship, and civil rights, the ability to engage effectively with others in the public domain, and willingness to participate in democratic decision-making at all levels. This will lead to analysis of the assumptions of subalternity on the one hand and of civic literacy on the other. The speaker's thesis, based upon his reading, is that civic literacy is basically connected with respect for human rights and with the intention to keep up civil societies and democratic polities. Subalternity is a prominent, but not the only, character of modern India – recent protests against the rape of a young student have shown that there is a strong feeling of human dignity and a consciousness of the advantages of democratic civil societies and polities. Finally there will be a short discussion of ideas and opportunities to improve democracy and corresponding civic literacies and virtues by promoting information literacy.

The paper may serve as a contribution to a session dedicated to diverse aspects of information and civic literacy.

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Keywords: *India, urban poor, civic literacy*

Rhetoric in the Finnish Higher Education Information Literature Teaching: Analysis of the Activity Systems Found in the Finnish Academic Libraries IL-Recommendations

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From the beginning of this millennium there has been an ongoing discussion by the Finnish Higher Education Libraries, the aim of which has been to implement standardized requirements for Finnish higher education IL-instruction. The first phase was the translation into Finnish of ALA's *Information Literacy Competency Standards for Higher Education* in 2001 by the Student Library of the University of Helsinki (2001). Based on this, a project called *Information Literacy Curriculum Project 2004-2006* was initiated (Juntunen et al. 2008) which published *Recommendation for universities to include IL competency in the new degree structures* in 2004 (Recommendation 2004). At the same time, the Finnish libraries of the Universities of Applied Sciences (UAS) published and started to implement their own recommendations (AMKIT, 2007).

Finnish higher education is build on a dualistic model: on one hand, the Universities bear responsibility for scientific research and offer tuition based on it, and on the other hand, the Universities of Applied Sciences (UAS) offer instruction and conduct research that is more practically and vocationally oriented.

Our paper aims to investigate the documents mentioned above in order to reveal the structural dynamics of IL-background assumptions based on analysis of activity-theoretical system components and on Greimas´ actant- model of narrative structures.

The set of practical purposes–based criteria for theses done in Finnish UAS, together with changing information environments, caused, for instance, by the increasing role of social media in information seeking, challenge the guidance of thesis processes as well as library services with an IL-slant. In addition, the modern working life offers its own challenges to the student and to higher education institutions. We suggest that the actant-analyses of incompatible motifs present in thesis writing and guidance may help to develop more up-to-date inter-professional guidance practices.

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Keywords: *Information literacy, tuition, actors, higher education, libraries, Finland*

Applied Information Literacy and Learning: Curriculum Development for the Next Decade

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In 2006 we developed and presented the first version of a model called Applied Information Literacy (Lantz & Brage, 2006). The reason for us to develop the model was to integrate fundamental and advanced information literacy concepts into research instruction sessions. We had noticed that incoming students were not able to handle information effectively and they also presented widely varying definitions of "research". Since 2006 the information landscape has evolved and has become more complex. Students have changed their information behaviours and they think and process information differently from previous generations. In addition, new social media and new ways of publishing have changed the processes involved in scholarly communication. Therefore we had to make a minor revision of the model. We would like to present the revised model of Applied Information Literacy.

The model can be described as an action research approach comprising several simultaneous processes. The action research perspective provides a systematic approach and encourages reflective decision making through the different phases of information retrieval and use, altogether forming a cyclic or spiral process of action learning with cycles within cycles of action, critical reflection and learning. The model itself, which conceptualises reflection at the centre of learning, helped us to develop our information literacy curricula. It has been useful both for teachers and students to arrive at a deeper understanding of the processes involved in academic research and writing. Through the holistic theoretical framework we are able to explain the interplay between information utilization and the different phases of the research and writing processes. This would ideally translate into better academic performance.

In our information literacy sessions we try to challenge the students to face the complex process of identifying their information need and to make decisions about how to progress through the metacognitive processes of interpreting, selecting and applying information. By comparing students' exam-papers prior to and after the implementation of the model we found indications of improvement of critical and analytical thinking in terms of meaningful and relevant writing skills. They were able to broaden their currently held ideas and to challenge and change the assumptions they took for granted.

There has been insufficient attention given to both the nature of reflection in information literacy learning processes, and its relationship to the purposes, processes and outcomes. Hopefully, the model of applied literacy will have a critical role to play not only as a means of student learning but also in building the capacity of teachers and librarians, that means learning for all "in, through, and as action research" (Brennan, 2013, p.1).

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Keywords: *Applied information literacy, curriculum development, higher education*

Information Literacy, a Post-2015 Education for All Goal

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Information literacy – mostly addressed here through the lenses of digital literacy and higher education – is recognized as a critical element for success at all education levels and constitutes the necessary basis for lifelong learning.

'Education for All' is a United Nations' initiative which aims to provide education to everyone by 2015. Yet, there is evidence that its goals won't be reached by that date. It is therefore all the more important to start reflecting and proposing new and innovative ways to fulfill 'Education for All,' and to keep education as a top priority level in both international and national agendas now and in the future.

To this end, this paper advocates for the inclusion of information literacy in the post-2015 education agenda for the following reasons:

- The knowledge society, which involves many informational choices based on abundant and evolving supports and implies the knowledge of an increasing number of copyright types, is here to stay;
- Open Educational Resources,Massive Open Online Courses, and even social media could become tomorrow's main education providers. Already today they are changing the way teaching and learning are conducted;
- The growing number of students, a shortage of teachers, and reduced educational financing make the case for more online-based higher education stronger;
- More and more education and research materials are provided online but not yet available to everyone;
- Technological changes happen every day.

It ends by explaining how the academic librarian become involved and why they should be associated with the promotion of information literacy in 'Education for All.'

The advocacy is based on a review of the literature as well as on the results and discussions from two IAU projects: *Higher Education for Education for All* which advocates for a better recognition of higher education's three missions for reaching 'Education for All,' and *The Role of the Academic Librarian in the Use, Re-use and Production of Open Educational Resources*, a capacity building project for an improved use, re-use, and production of Open Educational Resources worldwide. Both acknowledge that tomorrow's education will be increasingly, if not solely, provided online. Moreover, education will take place at anytime and anywhere. If digital literacy is not extended to everyone from a very early age and throughout life, today's higher education gap within and between countries might increase instead of decrease, 'Education for All' might never be reached, and higher education gains might only originate from a handful of countries.

***Keywords**: Information literacy, access to education, EFA*

The Influence of Technological Changes on the Definition of Information Literacy

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The purpose of this paper is to point out the inadequacy of the currently accepted definition of information literacy which is based on the traditional concept of information literacy created in mid 1970s. During that time, society has undergone substantial changes, especially due to information technologies (IT). The definition of information literacy has been shaped gradually, indicating the possibility of openness to adjusting the definition to the current situation as it changes. The definition crisis can also be seen in related literacies, which aim to better reflect current needs.

Increasingly, information has been stored, transmitted and used by means of IT since approximately the same time the concept of information literacy was first defined. The milestones in technological development may therefore affect the changes in the definition of information literacy. It can be evaluated from the comparison of timelines showing the development of information technologies and changes in the definition of the information literacy. They come from contextual analysis based on document analysis, from which technological factors are stressed. The fundamental changes in IT and their use in recent years are mentioned, so as to be reflected in the definition.

Inspiration for the definition of information literacy may be taken from the characteristics emphasized in the new types of literacy with regard to the shortcomings of information. We ask whether information literacy is an umbrella term for computer literacy, media, financial, digital, etc., and how to define these literacies. But it is important to keep in mind that the content of literacy is evolving and all of these definitions need to be considered in terms of new opportunities and problems that are associated with improvement in IT. All concepts related to literacy involve visual, electronic and digital forms of expression and communication. Modern forms of literacy are therefore firmly tied up with changeable technology and the culture of a society. The comparative analysis based on literature shows the same and different characteristics stressed in definitions of literacies related to information.

The aim of this paper is not to establish a new definition that would prevent any doubts linked with these issues. Our goal is to offer an overview and arguments based on this analysis and to promote a broad discussion. Definitions are not fixed and means for determining information literacy need to be flexible, without losing its clear meaning, but take account current requests for an information literate person.

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Keywords: *Information literacy, definition, information and communication technologies, technological changes*

Exploring the Basic Elements of Information Literacy Standards

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Background

Since Zurkowski coined the term information literacy in 1974, quite a few information literacy standards have been developed around the world. Information literacy standards play an essential role in shaping information literacy education. The formation and construct of an information literacy standard depends on how people interpret the concepts of information literacy. That is, the conceptualizations, content, and implementations of information literacy have been found to be diverse. Some schools of thoughts focus on learning and knowledge acquisition skills in the digital age, while others are concerned with information technology, information ethics, web security and safety. For example, the Ministry of Education (MOE) in Taiwan promotes information technology in K-9 information literacy, and information ethics in higher education. The concept of information literacy seems to be interpreted differently by people with different kinds of traditions, training and cultural background.

Research Questions

The primary concern of the current study is to identify the basic elements of information literacy standards/indicators. Research questions are: (1) what are the basic elements of information literacy standards/ indicators? (2) What are the similarities and differences among the standards/indicators?

Methodology

Content analysis, the qualitative approach was applied. First, a draft coding scheme was developed by analyzing two randomly selected standards. Then, a total of ten representative standards/indicators published around the world were analyzed recursively to finalize the coding scheme. Ten standards/indicators include the Information Education Guidelines published by MOE in 2007, AASL/AECT' Information Literacy Standards for Student Learning, 1998, 2007, UK's The Seven Pillars of Information Literacy, 1999, 2004, ACRL's Information Literacy Competency Standards for Higher Education, 2000, ANZIIL, 2004, Hong Kong, 2004, IFLA, 2006, and UNESCO, 2008.

Findings

Research findings include: (1) there are basic and additional elements for information literacy standards/indicators. Basic elements can be found in almost all the standards/indicators analyzed, while only some of the standards/indicators bear the additional elements; (2) six main domains are defined: Access, Evaluate and Use belong to the group of basic elements, while Share, Social Responsibility and Personal Achievement belong to the group of additional elements; (3) several sub-domains were identified; (4) seven dimensions, namely, Resources, Tools, Cognition, Affection, Skills, Ethics, Security and Safety were found to be associated with certain sub-domains; and, (5) each information standard/indicator bears its own focus, depending on the context and the target group it serves.

Contributions

The research findings not only contribute to our understanding of the taxonomy of information literacy but also to the formation of a new information literacy standard/indicator for the countries that do not yet have information literacy standards. The findings of the basic elements of information literacy standards will be of benefit to the future discussion of information education policy issues.

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Keywords: *Information literacy education, information literacy standard, information literacy indicators, basic elements*

Promotion of Scientific Literacy and Popularization of Science with Support of Libraries and Internet Services

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Science is the most important source of information about the world that surrounds us. To understand basic scientific concepts and how they are used in everyday life, a person must be scientifically literate. Scientific literacy defines what the public should know about science in order to live more effectively with respect to the natural world (DeBoer, 2006). By being scientifically literate, members of society will become able to critically approach science and scientific discovery, they will also be able to understand how scientific information has been established; under what circumstances the scientific knowledge is reliable, and how agreement of knowledge is maintained. They will be also able to contribute to the development of society by implementing the scientific knowledge they possess. Finally, according to Van Eijck and Roth (2010) "In the everyday world, scientific literacy likely does not mean doing well on a test, but it means knowledgeably participating in and contributing to worldly affairs where scientific literacy is required.". Libraries have always had an important role in disseminating scientific knowledge in society in general and its segments, for instance, universities. At the moment, regardless of their type, libraries are transforming their services to accommodate information and educational needs of new generations of users by developing new library services tailored to their user needs. More and more frequently libraries are integrating selected internet services into their daily operation to attract and keep users otherwise drawn by the splendor of the internet. When speaking about libraries in general, one activity among many activities in libraries' portfolios could also be the promotion of science and scientific literacy. This paper will discuss role of libraries (in general) and the internet (i.e. selected internet services) in promotion of scientific literacy and popularization of science. Libraries in Croatia are currently missing an opportunity to develop scientific literacy programs by aggregating the best digital information resources and developing internet supported services that would enable access to scientific content for the purpose of educating general population in science. To achieve success in this task, libraries need adequate human resources, financial resources and technical resources to prepare popular scientific content for use on the internet on their own or to redirect users to the best scientific portals, blogs and Web pages of scientific institutions and societies they select. In doing this, libraries could employ some of marketing principles. This paper will single out and discuss a group of important issues related to libraries, scientific literacy, internet services and marketing that would, when combined, give clearer picture of what libraries could do for the development of society in the turbulent 21st century.

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Keywords: *Scientific literacy, libraries, internet services, marketing*

Information Literacy and Autonomous Creation of Knowledge in University Students

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Our knowledge society demands professionals and citizens with knowledge, competences, active behaviour, and capacity for autonomy, cooperation, innovation and creativity. University teaching staff, in collaboration with librarians, should develop students´ potential to acquire these skills and values with the aid of adequate tools and methodology.

We present evaluative research work about a cooperation project developed at the Universidad de Santiago de Compostela (Spain) in the ambit of e-learning with multidisciplinary and multi-professional teams (teachers from different areas of knowledge and librarians).

In the research carried out we sought to demonstrate that with the design and application of a programme aimed at the acquisition of Informational Competences in e-learning mode, integrated into the curriculum and with an active methodology, we could bring about significant change in university training.

The hypothesis was that the Program CI would be integrated into the learning process of the subjects as key transferable skills that university students did not acquire with traditional methodologies

We analysed the social, educational and technological context of the current time and the internal context or framework of action and we detected the root problem which the research was aiming to address: the weakness students present in the values and competences so sought after in knowledge society. To correct this deficiency we designed a specific programme (Programme CI) on a virtual platform and we applied a creative and interactive methodology. This program supposed the modification of traditional teaching habits and culture, the integration of the librarian as conductive agent and a new form of student learning. The efficiency of Programme CI was measured via analysis of results with different assessment tools

The specific objectives were set out within the following areas of action: 1) Learn by doing, the student learns to confront the problem and determine the aim of his research, setting out the subject, what sources of information to use, how to look for and recognise the useful information, then analyse and select it. 2) Learn how to debate, reach a consensus and take decisions in a team; the students have to reach conclusions on the contents of what they have been working on. 3) Learn to communicate; the students shall be capable of presenting the results arising from their considerations and information used, correctly quoted.

The work methodology is based on a formative itinerary with sequential actions and incorporating some activities which lead to reflect on the learning itself. The Programme includes a series of control instruments: work diary, folder of tasks, group evaluation cards. The global evaluation was carried out using diverse surveys, on initial diagnostics, CI survey on final learning outcomes, end product of contents, satisfaction questionnaire and the final forum on free expression and joint evaluation.

As overall results of the experience we highlight: the student's autonomy in problem solving, the strengthening of values such as cooperation, solidarity, and discipline as work team members, as well as the relationship between teams. All become senders and receivers in an exercise of exchanging ideas, experiences, in a space of shared intelligence, a 2.0 classroom.

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Keywords*: Information literacy instruction*

Perceived Barriers in Relation to Health and Lifestyle Information among Icelanders

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The significance of encouraging people to be more actively involved in health promotional interventions through life-long learning has been emphasized. An essential part of life-long learning is information literacy, a competence that allows individuals to "…recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information" (American Library Association, 2000). Various factors, however, may have an impact on information literacy and act as barriers (Canadian Public Health Association, 2006; Mazloomdoost, Mehregan, Mahmoudi, Soltani & Embi, 2007).

The study examined the perceived barriers to health and lifestyle information among different groups of Icelanders, as well as their motivation and information seeking behaviour. The paper will seek answers to the following questions: 1) What barriers do different groups of Icelanders experience in relation to health and lifestyle information? 2) How do the perceived barriers reflect the motivation and information seeking behaviour of different groups of Icelanders? The data was gathered using an internet and a telephone survey in spring 2012. Participants were 1,200 adult Icelanders, randomly selected from the National Register of Persons in Iceland. Response rate was 58.4% (N=696). Measurements: *1) Socio-demographic information* includes variables traditionally asked. *2) Motivation*: Participants were asked about their interest in health and lifestyle information and how often they discussed this topic with others. *3) Information seeking*: Participants were asked about their information seeking behaviour in twenty-five information sources. *4) Information barriers*: Participants were asked to reply to 13 statements about possible barriers of information behaviour.

K-means cluster analysis was used to determine how the participants formed distinct groups based on their information seeking activity (Everitt, Landau & Leese, 2000). Four clusters were drawn. For the questions about barriers and motivation, FANOVA, controlling for the effects of sex, age and education was used to explore differences between the means of the clusters on the dependent variable. A post-hoc test (Tuckey) was conducted to examine which of the four clusters differ significantly. Certain trends were noted about the participants' experience of barriers. In most cases the barriers were perceived as great, or relatively great, while a few were considered lower barriers. Thus, although the experience of barriers varied, the results indicate that the participants had problems related to their information literacy. Barriers that were perceived as great included beliefs about the existence of information, access to it, and where to seek it, as well as problems related to finding time to seek information, seeking it away from home and financial cost. Information overload, ability to recognize the quality of information and knowing what information can be trusted, was considered a lower hindrance. Results about differences across the four clusters show a connection between motivational factors and information seeking. The cluster which sought information most often was most motivated and the least active cluster was the least motivated. Significant differences were found across the clusters for seven of the statements indicating barriers. Surprisingly, the results show that the clusters that sought information more often reported higher barriers for five of the statements, while for two of them in the cluster that sought information least often reported the highest barriers. Possible explanations to these findings will be discussed in the paper.

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***Keywords**: Barriers, health and lifestyle information, information literacy, information seeking, motivation*

Information Literacy in the Czech Republic: A Territory for Theory, Practice and Co-operation

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The Information Education and Information Literacy Working Group – *IVIG*, part of the Association of Libraries of Czech Universities – *ALCU* (ALCU, c2003-2012) was established in 2000. IVIG activities cover introducing conceptual and theoretical documents, including terminology and definitions, as well as preparing teaching materials, organizing workshops and sharing best practices. The co-operation with key IL actors within and outside of the Czech Republic has become an essential part of IVIG's work. At the beginning, there was a crucial task of developing applicable Czech terminology related to information literacy issues. The term *information education* was adopted as the unified term for activities leading to IL development. Simultaneously, work on IL definitions that would be meaningful to all IL actors in the Czech Republic was begun. The final set of requirements became the basis for creating the *Information Literacy Standards of the University Student in the Czech Republic*. In addition to surveysmeasuring students' IL levels, there were surveys on information literacy activities undertaken by academic libraries in the Czech Republic. Starting in 2000, a series of six questionnaire surveys were carried out in order to map the development of activities in information education at the public universities in the Czech Republic. In 2008 the IVIG working group published a crucial strategic document – *Information Education Strategy at Universities in the Czech Republic* (ALCU, 2009). Several issues related to IL were presented and discussed on the practical level as well. An IVIG seminar was established in September 2003 that is now an annual event. In order to share the experiences at the international level, Czech librarians and IL specialists have presented their research results at several workshops and conferences (Dombrovská et al., 2006; Tichá, 2007). At the same time, they have participated in the creation of a strategic document for central and south-east European countries (Pejova et al., 2006), and contributed to a publication discussing the IL issues European-wide (Landová et al., 2008).

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Keywords: *Czech Republic, information literacy policy, higher education, professional organization*

Digital Literacy Training for Elderly Students at the Open University of Japan

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Background

Digital literacy is a component of the concept of information literacy, which was initially defined in 1974 as 'techniques and skills' known by the information literate 'for utilizing the wide range of information tools as well as primary sources in molding information solutions to their problems' (Zurkowski, 1974, p. 27). The expansion of virtual environments in the early 21st century have gradually shifted the world toward a knowledge economy in which people need to keep learning, even after graduating from formal education, to cope with the rapid changes in society. In response to social reform, the concept of information literacy has expanded to include digital literacy, network literacy, media literacy, and library literacy for lifelong learning (Chevillotte, 2010). Digital literacy, the ability to locate, organize, understand, evaluate, and analyze information using ICT, has become increasingly important in knowledge-based societies, which call for lifelong learning. It involves a working knowledge of current ICT and its use. Digitally literate people can communicate and work more efficiently by using their knowledge and skills of ICT.

Objectives of Digital Literacy Training

The Open University of Japan (OUJ) offers distance-learning programs through courses broadcast on TV and radio, in addition to face-to-face courses offered at 50 study centers nationwide. The rapid popularization of the Internet and the progression of information and communication technology (ICT) have provided virtual environments for e-learning, the online provision of distance courses using networked computers and mobile devices. Recently, the OUJ started to implement ICT, including Web-based delivery of courses and online registration, but these have not been fully utilized by students. This is mainly because some older students at the OUJ had little experience in using PCs and/or the Internet. To prepare students to use the Internet and maximize Web-based learning opportunities, the OUJ began offering a digital literacy training (DLT) course at each of the 50 study centers in October 2010. Lecturers from the OUJ headquarters taught a 12-hour intensive course at the study centers each year, using originally developed standardized teaching materials and a common syllabus.

Assessment and Future Plan

A series of checklist surveys with twenty five items was conducted before and after each course to measure the learning outcomes and perceived self-efficacy of the students. Examples of checklist items are logon/logoff, keyboard operation, run application software, web search, e-mail, change password, access OUJ online courses and, register courses, use OUJ library, virus check, word processing, file management, and presentation. Scores of learning outcome after the course were significantly improved for all items. However, we realized that the use of local lecturers was necessary to develop a community of practice at each study center and allow ongoing learning of ICT skills. This led us to shift responsibility for teaching the course to local lecturers. We developed a Moodle site for instructors to share model teaching materials and practices. A discussion board is available for local instructors to exchange teaching ideas. The Web site is expected to support quality assurance of digital literacy training at the OUJ.

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Keywords: *Digital literacy training, faculty development, lifelong learning, information literacy for adults*

Information Literacy of Public Health Students in Bordeaux, France: A Cross-sectional Study

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Introduction

This study builds on an earlier Information Literacy (IL) assessment of incoming master and doctoral public health (PH) students in Brazil. We subsequently discovered that undergraduate background was associated with IL status. The objective of our work is to describe the IL levels of master students at a French PH institution and investigate whether differences in IL were dependent on students' country of origin. Results will be used to improve the ongoing PH course.

Methods

Researchers performed a cross-sectional study of PH master students attending the *Institut de Santé Publique d'Épidémiologie et de Développement* (ISPED), 2010. ISPED traditionally hosts international students. A questionnaire (Martinez-Silveira & Oddone, 2008) was adapted and translated to French and distributed during an ongoing IL course. There were 151 French and foreign first-year (M1) and second-year (M2) master students, in face-to-face (FF) and distance education (DE) modalities. Descriptive analysis addressed demographic and IL elements. Chi-Square and Mann-Whitney tests were used for statistical analysis.

Results and Discussion

Among the enrolled students (n=151), 98 were French, 61% women, 20-55 years old (mean 28.9, SD 7.9). Study participants (Ps) (n=86) were statistically similar to the enrolled group for all but one variable: Ps were more frequently M1 ($p<0.001$). Foreign participants (FoPs) (n=31) came from 19 countries. FoPs were mostly older, male, physicians on DE, while French Participants (FrPs) (n=55) were mostly younger bachelor females on FF. 96.5% performed their information retrieval on their own. Respectively, 94% and 85% used PubMed/MEDLINE and advanced interfaces, 1/3 used MesH. 1/3 was satisfied with the results. 64% used MEDLINE frequently, and 64.7% did not know the Cochrane Library Database. Where to search was a common difficulty for 24 Ps; when selecting documents, preferences were for the free ones (n=29); and, when looking for the full-text document, searching it online was most frequently chosen by 23. Contrasting differences between FrPs x FoPs were seen in the nature of information sources chosen and teaching received. None of the FoPs learned from librarians, less than 25% from a professor. FoPs were less experienced with advanced search. FrPs were less aware of the Cochrane database and had problems when choosing search terms. When selecting a document, FrPs were less prone to pay for full-text documents and more prone to finding it online. In addition to undergratuate background, lack of librarians/resources in the respective foreign countries could be associated with the observed IL differences. Course planners of international PH programs should take these variables into consideration.

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Keywords: *Information literacy, public health information seeking behavior*

Designing and Implementing Web-based Tools to Assess Information Competences of Social Science Students at Spanish Universities

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The acquisition of information competences as a requirement for all the degrees from Spanish universities has been implemented in academic programs according to the models guiding the European Higher Education Area (EHEA). Librarians are working together with faculty, following diverse methodologies, to achieve a higher command of this competence. However, the assessment of this competence is difficult since there are not available tools to systematise and test this process in an easily applicable manner. If assessment is performed imprecisely or in a wrong manner, educational programs might lose value and endanger their process of accreditation. Thus, the aim of our paper will be to explain the process of designing and applying a set of web-based tools that assess information competences, focused on Social Science students at Spanish universities. We draw on a socio-constructivist model of student learning, and on our previous experience in developing web resources and tutorials for learning information skills (i.e. E-coms, Alfamedia, Alfineees) and online tests such as "Infolitrans" (for students of language degrees) and "IL-HUMASS" (for students in Humanities and Social Sciences). These previous tests were focused on the self-assessment of information competences among students of these areas. We have designed a toolkit that includes four web tools to obtain a diagnostic assessment of the preliminary level of the students. This toolkit includes: 1) a *corpus of documents* containing a set of texts about diverse current topics, in electronic format and with a controlled degree of difficulty, to be used by students when acquiring the required competences; 2) the *IL-HUMASS questionnaire*, which measures students' attitudes towards information competences and is focused on their perceptions on the importance and self-effectiveness of a number of specific tasks; 3) a *knowledge test*, based on the IL-HUMASS model, organised in four categories, one for each key competence, namely information search, information evaluation, information processing, and information communication and dissemination. This test consists of 78 items with 4 possible answers each, that measure the objective knowledge of students about the defined competences; and 4) another instrument using *assessment matrices* which is designed to prove students' know-how in applying their information competence by fulfilling a set of objective tasks. The combined application of these instruments to a sample of 452 first-year students of six degrees representing the broader field of Social Sciences at the University of Granada (namely, Infant Education, Primary Education, Library Science and Documentation, Audiovisual Communication, Psychology, and Law) allowed us to analyse the correlation between the self-perception and the significance given by students to their own information competences and the objective results obtained from the students during the assessment. In conclusion, the results obtained so far confirm the internal validity and the reliability of the designed tools in the diagnostic assessment of information competences of students from any degree. Correlations among sub competences of the four analysed categories (search, evaluation, processing, and communication-dissemination) are high, generally speaking, both in terms of the relevance of the dimensions and of the perceived self-effectiveness in these competences.

Keywords: *Information literacy, evaluation, social sciences degrees, higher education*

Digital Divide in Higher Education Students' Digital Literacy

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Drawing on the assumption that higher education students constitute the group that shows the most intense and varied use of digital media, these students are often associated with an image of "new millennium learners", a concept that aims to reflect the idea that students "[...] are expected to use a variety of digital media to a very intense degree, and for a vast range of purposes, including personal entertainment, personal and social communication as well as learning" (Pedró, 2009). However, it would be dangerous to assume that being deeply attached to the Internet automatically transforms students into "new millennium learners" (Pedró, 2009). In several dimensions of internet use, the digital divide still persists (Committee of Inquiry into the Changing Learner Experience, 2009). Despite these concerns, pointed out in several studies on higher education students and internet use, there is little research providing a deeper understanding of the several dimensions of the digital divide among this specific group. As Hargittai (2008) notes, the study of a group with high levels of access to and use of the Internet, as is the case of higher education students, is ideal for studying nuances in usage because access differences can be controlled.

This article explores the Internet-use attitudes, behaviors, and skills associated with digital literacy amongst students in higher education. A survey was administered using a sample of 148 first-year students and qualitative data was collected by means of 22 individual interviews and 2 focus groups (a group with university/technological students and a group with polytechnic/non-technological students). Different groups were used in order to ensure a representative sample in gender, area and sub-system of education. Elements of digital literacy such as confidence in sharing contents, privacy and protection, information literacy skills and ethicality/responsibility surrounding the access and use of digital information were analyzed from participants' online activities. The research was taken with a particular focus on online activities carried out by students within an academic context. From the data analysis it is suggested that there is some variation in students' online skills and these are not randomly distributed between the groups. In particular, significant differences between university and polytechnic participants, as well as between participants of technological and non-technological areas were found in regards to confidence about getting the information they need quickly, with university participants and technological participants seeming to be more confident. Qualitative data analysis has also showed that the polytechnic/non-technological group revealed less confidence about their skills in running effective searches than the other group, as well as less confidence on posting comments online. Significant differences between males and females were also found. Males are associated with more confidence in the ability to find the information they need quickly, while females seem to focus more on ethical/legal issues surrounding the access and use of digital information. Qualitative data shows that females pay more attention to the personal information that they put online whereas males have more confidence on posting comments and sharing contents online. These results are consistent with the idea that even among a highly wired group of young adults, "(…) [the] use of ICT does not necessarily entail 'meaningful use of ICT'"(Selwyn, 2004). This has important implications for higher education institutions, which can play key roles in helping students meet the additional demands that society has placed on young people by developing new skills and attitudes valued in a networked and knowledge society.

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Keywords: *Digital literacy, digital divide, higher education students, Internet use*

Information Literacy Skills Assessment of LIS Students: A Case Study at the Jagiellonian University

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The development of awareness of the information society, as well as the progress and implementation of new forms and tools of the information and communications technology, forced the need for development of the appreciation of the different competences, qualifications and professionalism of individuals functioning in the present reality. A special role is attributed to education at various levels, undertaken not only formally, but also informally throughout life, and increasingly paying attention to the fact that education or studying is not just a collection of knowledge, but also is acquiring relevant and appropriate skills and complementary comprehension of an information culture.

The aim of this study is to estimate the Polish library and information science (LIS) students' core competencies, information literacy and information behaviour concerning information process, resources used to enhance learning, evaluation criteria, motivations, and forms and tools of information and communication applied. The online survey was used as the research method. The questionnaire concerning information behaviour was conducted among the bachelor and master students of the Institute of Information and Library Science at the Jagiellonian University, Krakow. 232 answers were received. It should be mentioned that it is a part of the multi-nation research project on information literacy and behaviour of LIS students from Australia, Bulgaria, Croatia, Finland, France, Hungary, Japan, Lithuania, Malta, the Netherlands, Poland, Portugal, Romania, Russia, Singapore, Switzerland, Turkey, UK, and the USA. The quantitative and qualitative analysis were used to understand complementary the information behaviour of students. The evaluation of the results helps to increase the awareness of information literacy implementation, development and status within students' environment and also verify the correlation of their skills with international standards indicators and international and national directives concerning core competencies.

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Keywords*: Information literacy, information behaviour, information and library science, students*

Information Behaviour of Students: Belgrade University Case Study

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This study discusses the information seeking behaviour of undergraduate students in the University of Belgrade, Serbia. The key assumption of this research is that the contemporary academic community faces significant changes of attitude towards learning and studying due to a huge gap between the nature of communication via media and the mental process of adopting new knowledge. Most of the students who are computer literate are not information literate: proficiency in using technology and computers is not accompanied by understanding the content, quality and relevance of information resources. The purpose of this paper is to determine the levels of students' competencies that relate to retrieval, use, presentation and evaluation of information.

Research was based on two key methods: theoretical analysis method and empirical-non experimental, also known as the survey method. Theoretical analysis was used to explore similar case studies and research, which later served as a starting point for comparative comprehension of gathered data.

Objectives of the study were as follows:

- identifying structure and models of information resource usage in the learning process
- discovering students' attitudes towards the importance of the internet in education
- learning how students conduct research in everyday life
- defining the key points for students' acceptance of the library as a carrier of information literacy
- creating a report and recommendations for academic librarians to assist students while developing research strategies that utilize the full range of library resources, both print and electronic.

Using random sampling methodology the data was gathered through an online and offline survey given to final-year students at two large academic libraries: University Library "Svetozar Markovic" and University Library of Cultural Center "Students' City", as well as several faculty libraries. The goal was to select a sample of students who have academic experience and would appear in the labor market soon. Results were gathered from a diverse group of 200 students, generally divided into two categories: students of technical sciences and students of social sciences and humanities. The first part of the survey contained questions about student research behaviour related to their coursework, while the second part was oriented towards research in everyday life, with special focus on issues such as credibility, relevance and values in the digital age.

The findings reported here are original and reflect the current views and practices of information seeking behaviour of University of Belgrade undergraduates, which correspond to the results of relevant worldwide studies. Major findings include the internet being rated as the key source for most of the required information, followed by e-services via KoBSON (Serbian consortium for coordinated acquisition of electronic resources), print textbooks and materials and finally academic librarians as tutors. Also, the study shows that gender, age, and field of study influence the information seeking behaviour related both to coursework and everyday life. The key pedagogical problem appears to be as originally assumed -- disproportion between a high level of computer literacy of the "Google generation" and their low level of information literacy.

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Keywords: *Information literacy, higher education, information seeking behaviour, resources, University of Belgrade*

Experiencing Information across the Phenomenon of Health Information Literacy

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Interest in the concept of information literacy in different contexts is a topic that has steadily gained increased attention in information literacy discourse and research efforts over recent years. In particular the emergence of the term 'health information literacy' attests to this interest and has elevated awareness about the importance and relevance of information literacy in a health context. This paper reports on research that has taken a relational perspective to explore how people experience health information literacy. Initially established by Bruce (1997) the relational perspective draws from an experiential framework that emphasizes the relationship between users and information when learning in different contexts. This approach seeks outcomes that are deeply embedded in users' informational life worlds and complements experiential phenomenological perspectives that have been used in health research. In keeping with the relational approach this research interprets health information literacy as being the different ways in which people experience using information to learn about health.

Using interpretive phenomenography, this research explored variation in the lived experience of how people use information to learn about their health, and variation in what is constituted as information when learning about their health. Participants included 23 males and females aged between 45 and 64 years. All participants were residents from the Greater Brisbane area of Queensland, Australia. The research used semi-structured interviews for data collection. The types of questions posed during interviews included '*Can you describe a time when you used information to learn about your health?*' and '*What kinds of information have you used to learn about your health?'*.

This paper will focus on presenting one element of research findings that concerns the differences in 'what' participants experienced as information. Analysis of interview data identified significant variation in the experienced nature of information, specifically the different qualities or elements that comprised the 'object' of information, or in other words, what was perceived as 'informing'. Illustrations of this variation include information experienced as traditional information sources, facts and experiences, something exhibiting particular qualities, physical or psychological changes, other people and role models. These findings provide new insights into what people may experience as information, and build upon existing literature regarding information as a theoretical construct. In addition the potential implications of these findings with respect to the design and delivery of health information literacy education will also be discussed.

These research findings contribute to the emergence of information literacy investigations in everyday life and community. Although such settings have long been identified as a significant gap for exploration, research to date in this field has predominantly focused on educational and workplace environments. In this way the knowledge gained from this research has further revealed the contextual nature of information literacy, as well as its complexity as a phenomenon and focus of study.

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Keywords: *Health information literacy, experience, phenomenography, learning*

Investigating the Use of ACRL Standards in Instruction Programs

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This presentation will address the employment of the ACRL standards in actual courses, shed light on the variations of the standards as they are used in instruction, and enable practicing professionals to comprehend ways in which the standards may be adapted under specific circumstances. A premise underlying the ACRL standards is that these provide guidelines for the measures of accountability of library and information literacy instruction (2000). This study investigates the incorporation of the ACRL standards into instruction and focuses more specifically on the use of these standards in credit-bearing, term-long information literacy courses. A survey instrument was used to conduct this research. A link to the online survey was posted to the ILI-L (Information Literacy Instruction Discussion) listserv, which currently has 4993 subscribers worldwide. The 117 instructors who responded to the survey came from academic libraries and academic institutions, almost half of whom (47%) from institutions with student populations below 5,000. The purpose of the survey was to discover how many libraries incorporate the ACRL standards into their courses as well as to allow respondents to indicate where and how they depart from the standards as written. Additionally, the respondents were asked questions regarding specifics of their incorporation of the standards. For example:

- What do you think are the essential outcomes of the students' ability to determine the nature and extent of the information needed?
- What is most needed to enable an information literate person to access needed information efficiently and effectively?
- In what ways does your course attempt to help students extend their critical evaluation and use of information beyond an immediate task (such as, to build upon one's existing knowledge base and/or value system)?
- In what ways does your course assist students in the completion of academic assignments and other necessary work for courses they are taking at the time?
- In what ways does your course prepare students to employ information and information resources ethically and within the bounds of the existing legal framework?

The results of this study indicated that respondents largely (83%) agree with the definition of information literacy as expressed in the standards. Those who indicated that they do not adhere to the definition were asked what elements they add, to which all responded that they include course content on the information landscape or the contexts in which information is used. Respondents' preferences towards specific standards versus which standards' they devote the most time to in class is also discussed.

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Keywords: *Accountability, ACRL standards, survey, information literacy instruction*

Digital Rights for the Digitally Literate Citizens

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In 2010 the new European strategy *Europe 2020* was launched by the European Commission in order to prepare the European economy and European societies for the next decade. The Strategy acknowledges a key role of information and communication technologies and deals with it further in a document entitled *A Digital Agenda for Europe* in which proposals for action that need to be taken by 2020 are made. All public and commercial services should become available in the digital environment. Much of the content accessible today in cultural institutions such as libraries, archives and museums should also become available in the digital format. To achieve this the Digital Agenda envisages the creation of a trustworthy and secure environment, fast and ultrafast Internet access and enhancement of digital literacy and skills of citizens. Closely linked to the Digital Agenda is *Horizon 2020*, a new research and innovation programme, due to start in 2014, which reiterates the need for the development of inclusive, innovative and secure societies and emphasizes the need to ensure cyber security, trust and privacy. The prerequisite for digital inclusiveness is acquiring digital literacy.

The authors of this paper fully agree with the idea of inclusive societies and the importance of making citizens digitally literate. But they also believe that active and equal participation of citizens cannot be achieved if governments are not prepared to determine explicitly citizens' rights in the digital world. It is their responsibility to create such environments in which citizens would be able to enjoy their rights. Citizens should be aware of their rights in digital surroundings, such as: the right to access the Internet, the right to speak freely, the right to privacy, the right to be forgotten, and even the right to borrow e-books from libraries. Schools and universities are ideal places where knowledge of human rights in the digital society should be acquired. LIS educators and librarians have special responsibilities as regards digital rights: educators should reformulate study programmes and incorporate the topic of digital rights, while librarians should strive to speak for their users and incorporate the users' rights into library legislation. To prove their presumption that little is known about digital rights even among students, the authors conducted a small-scale research study among LIS and non-LIS students at two different universities in the country. A questionnaire was developed in order to learn about students' attitudes and expectations in the digital environment. Preliminary results show that there are no significant differences between LIS and non-LIS students in the period of time spent on the Internet daily and in the pattern of its use. The overall number of hours spent on the Internet confirms the important role it has in satisfying the students' needs for education, recreation and information. It appears that students take it for granted that the Internet is open to all and its contents accessible free of charge. But when asked who has the right to control it, they are divided in their opinions: approximately one third of students would allow the government to control the Internet, an equal number would give parents the right to control the contents used by their children, while the rest are opposed to anyone's control. Although well aware of possible intrusions on their privacy they are active members of social networks (mainly Facebook); nevertheless they limit access to friends only.

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Keywords: *Digital literacy, digital rights, LIS education, library legislation, Croatia*

Media Competencies in the Context of Visual Impairment

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Information and media literacy are accepted as indispensable in the modern world. For instance, the European commission highlighted back in 2006 the importance of digital competence as a key factor for enabling citizens for lifelong learning in the knowledge society (European Council, 2006). Various initiatives worldwide are therefore seeking to foster media literacy education, though there is not always agreement on specific skills that should be included, and there exist quite a few different proposals and approaches under terms such as information literacy, media literacy, or media competency (for an overview see Zylka et. al, 2011). As a consequence, the discussion of aspects to include into media literacy is ongoing, and generally agreed upon and binding standards are missing.

Only little attention has been paid to the specific aspects of information and media literacy suitable for disabled, and, specifically, blind and partially sighted individuals (visually impaired, VI). In fact, media and technology represent even more indispensable elements in the world of the visually impaired, and corresponding media literacy and skills imply personal independence and augmented quality of life. They enable VIs to take jobs, to communicate, and to learn, and thus expand the world of blind and visually impaired persons in many significant ways. On the other hand, lack of such competences implies a roadblock for success in the working world, since there are hardly any jobs for VIs.

In this paper we analyze the necessary skills required by VIs to participate in life in the knowledge society. For this, we provide an overview on the state-of-the-art in this field and on typical assistive technologies applied today. We discuss in more detail the handicaps remaining for VIs when using information technology in spite of this assistive equipment. We relate these handicaps to additional skills and competencies necessary, and link this to the current discussion on information and media literacy and the assessment of corresponding skills. Furthermore, we present general principles and concepts applied at the Vocational Training Centre for the Blind and Visually Impaired (Berufsförderungswerk, BFW) in Würzburg in teaching in general, and in teaching information and media literacy, specifically. Finally, we provide a discussion, highlighting strengths, weaknesses, and open questions in our findings and approaches.

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Keywords: *Information literacy, media literacy, visual impairment, competencies, assistive technology*

Academic Strategic Documents as a Framework for Good Information Literacy Program: Case Study of Law Faculties in the Republic of Croatia

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Information literacy (IL) programs are not formally implemented by the Croatian law faculties due to the lack of knowledge and understanding of IL at the institutional level by the institution management, faculty staff, administration, as well as librarians. Because of an informal and non-systematic conducting of the IL programs, students at the Faculty of Law of the University of Rijeka possess different levels of both generic and contextual IL skills needed for the development of their lifelong competencies. Therefore, the IL programs should not be developed within the library only, but the concept of IL should also be integrated into the strategic documents and program outcomes.

This study investigates the representation of IL within the educational environment of the institutions at the formal level, i.e. in strategic documents, in order to identify possible activities and methods that offer opportunities for collaboration in teaching of librarians and teachers. Strategic documents indicate whether IL is perceived at the institutional level as an essential factor that affects the outcomes of learning and the skills necessary for lifelong learning.

With this in mind we attempt to answer the following research questions: Is IL included in the strategic documents of the institutions? If so, in which documents and how is it represented? What is the institutions' attitude towards IL? What does the learning environment look like? Do institutions encourage collaboration between teachers, librarians, IT departments and bodies that decide on strategic documents?

The method of content analysis will be used to analyze the following strategic documents at all four Croatian Law Faculties (Rijeka, Osijek, Split and Zagreb): 1. Statutes of Law Faculties, 2. Mission, vision and goals of Law Faculties, 3. Regulations on the quality assurance of Law Faculties, 4. Strategy for Law Faculties.

As a framework for examining the characteristics of the educational environment we will use the ALA - Institutional IL quotient (The Information Literacy IQ test, 2007) which focuses on the higher education context. The contents researched within the documents include: perception of the library in IL teaching; representation of IL concepts; commitments to institutionalized collaboration between teachers, librarians and decision-making bodies.

The Method used in this research can be used for similar research on various levels (i.e. regional) since it is applicable to any higher education context. The Results will be used to set indicators for creating an educational environment that allows students to continuously and systematically acquire IL competencies. In addition, this study will serve to set guidelines for future research and understanding of the wider context of IL in the field of law, and as an aid in the design of IL programs for law students conducted by faculties' libraries.

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Keywords: *Information literacy, academic institutions, strategic documents, law faculties, Republic of Croatia*

Design Intentions and User Perceptions: Affordances and Perspectives of Usability in Web-Tutorials

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The purpose of the research is to investigate the relationship between design intentions and user perceptions of IL – learning platforms. The perception and actual use of a system does often differ from the use intended by the system designers. This discrepancy between how the user perceives and uses a system and the use foreseen by the systems designers can be identified in virtually all software systems (Lund & Pors 2012).

The theoretical perspectives in this paper are the interpretation of several perspectives or images of usability (Hertzum, 2010). Connecting the different perspectives of usability to a system gives new insights into use patterns and perceptions in different situations regarding diverse use. By relating the issues of a system's perceived and intended usability with the categories of usability, we will in the paper present a framework for analysing a system's intended and perceived use. Further, the different perspectives of usability are analysed with theoretical and empirical concepts based on theories of affordances (Sadler & Given 2007).

The empirical basis for development of the framework will be founded on a case study. The case study is based on a recent study of three Norwegian web tutorials where a number of users and uses of the web-tutorials were investigated (Hyldegaard et al., 2011). This included interviews with diverse user groups and usability studies of the web-tutorials. The study identified diversity of user acceptance and general use of the web-tutorials, which in some cases were far from the intended use as formulated by the system designers.

The findings and implications are interesting. Overall, the research indicated a discrepancy between design intentions versus use and perception of the tutorials. The research also indicated huge differences between different groups of users depending on the study year, discipline and modes of instruction. This theoretical approach has not been used often in library and information science research and the paper indicates its usefulness for further research. The findings presented in the paper also have implications for the way libraries design and promote information literacy tools. Altogether, the research project is ambitious and comprehensive and there is no doubt that it could affect design of learning platforms as well, as it provides insight into the use of and the discourses concerning a system. It also analyses the organisational setting and its consequences for systems and integration into the learning process. On a more theoretical level, this research project is concerned with theoretical and operational definitions of topics of importance both to libraries and to the learning process. It is both of great theoretical and practical significance that three systems in six different organisational settings are analysed from several perspectives employing different methodologies and data collection instruments.

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***Keywords**: Information literacy, usability, Web-tutorials*

Information Behaviour of University Students: From Today's Information and Communication Student towards Tomorrow's Excellent Future Information Specialist

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Information is available through plenty of resources – community resources, service providers, libraries, media, internet, etc. For information users this raises questions about information authenticity, validity, reliability, and creates the challenge of evaluating, understanding and using information (Bundy, 2004). This is the reason why it is so important to investigate information behaviour and information literacy skills of LIS students, the future information and communication specialists and main actors in the field who will be responsible for quality, accessibility, etc., of information provided to every society member. The *purpose* of the research presented in this paper is to analyse Vilnius University Faculty of Communication information and communication students' information behaviour and information literacy skills. The main *tasks* of this research are seen at two levels: the first is to reveal information literacy skills of LIS bachelor students, and the second is to analyse master students' information literacy skills, and to compare the level of IL skills of master students' who earned their bachelor degree in information and communication with those who studied other fields and disciplines. Due to this purpose, a *quantitative method* of the research was applied: Project Information Literacy (PIL) survey instrument for analysis of IL skills of LIS students was used. 129 respondents were surveyed: 86 bachelor students studying in three study programs which prepare LIS specialists to manage information in different institutions – libraries, information centers, museums and wide range of other cultural sector institutions, and 43 master students, studying several information and communication study programs at the Faculty of Communication. *Qualitative analysis* is made on the basis of quantitative data, received from the PIL survey, and results of the research are presented and conclusions are drawn.

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Keywords*: Vilnius University, LIS students, information behaviour, information literacy*

How Do Students' Social Identities and Study Approaches Play Out in Collaborative Source-Based Writing Assignments?

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Motivation and Objectives

Inquiry based learning is gaining ground as a promising way to develop students' information literacy. Inquiry projects are often undertaken as group work, an environment where social interaction and learning processes are closely intertwined. Little is known, however, about how students' characteristics play out in their work in collaborative inquiry tasks. We wanted to address this research gap by investigating how students' social identity and approach to studying influence their general attitude towards group work, and their way of working in a particular collaborative source-based writing assignment.

Research Questions

1. Do students' social identities and approaches to studying influence their general attitudes towards group work, and if so, how? 2. Do students' social identities and approaches to studying influence their ways to work in collaborative source-based assignments, and if so, how?

Data Collection

Data was collected from two eight-week courses in an upper secondary school in Tampere, Finland. The students were asked to collaboratively write an article to be published on Wikipedia (in the Finnish literature class) or the school's local wiki (in the history class). This paper will focus on survey questions regarding the students' social identity, approach to studying, general attitude towards group work and ways to work on the project. 53 students answered these questions.

Findings

Both students' social identity (popular, lonely, leader, follower) and their approach to studying (deep, surface, strategic) played out in their general group work attitude and their work in the studied project, but not always in a matching way. Students with a popular identity in general enjoyed group work, while lonely students preferred individual study. Leaders valued generation of ideas in groups, while followers appreciated help from others and sharing of the work load. In this particular project, leaders had been particularly active in discussing and writing with their team. Other social identities did not play out strongly in ways to work on the project. Deep learners in general preferred traditional study formats and clear division of tasks during team work. In this particular project they had worked individually with sources, particularly striving for a personal understanding of the subject matter. They had also communicated outside the group, asking others (parents) for comments on their texts. Students with a strategic approach had a positive attitude towards group work as a study format, appreciating opportunities for sharing of ideas and tasks. They had, however, ended up working individually in this particular project, and instead turned to their teacher for discussion of sources and comments on their texts.

Conclusions

Students' attitudes towards group work seemed guided both by social and learning related elements of collaboration. These basic preferences also, to a certain extent, played out in their actual work on the project. The findings underline the importance of acknowledging students' positioning towards both social and learning dynamics within collaborative work.

Keywords: *Students, collaboration, social identity, approach to studying*

Library Instruction in Two Croatian Academic Libraries

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Purpose

The purpose of this paper is to present outcomes of library instruction focusing on student information literacy (IL) at two Croatian academic institutions: Law Faculty and Faculty of Humanities and Social Sciences in Osijek, Croatia.

According to ALA (1989) IL is a set of abilities requiring individuals to recognize when information is needed and have the ability to locate, evaluate and use effectively the needed information. Technological advances in information storage and retrieval have created concerns for many academic librarians that college students may not be able to successfully retrieve the needed information. The introduction of electronic information retrieval methods and the explosion of information available across various media have, in the academic environment, created a need for library instruction programs fostering IL.

Research Design and Methodology

This paper describes the results of two IL instruction programs carried out at two academic libraries in Osijek, Croatia.

Faculty of Humanities and Social Sciences library has started with course-related IL instruction in academic year 2010/11. Initially, one 90-minute information literacy workshop was set up for 1st year and 3rd (final) year undergraduate students respectively. Workshops focused on various topics, such as, how to use library OPAC, understanding the elements in the library record, ILL, finding relevant information at library web page, data-base searching, etc. Information literacy workshops were evaluated by participants through exit evaluation surveys (e.g. instructor quality, content, presentation, satisfaction) whereas the participant IL outcomes were assessed by the method of citation analysis of student final papers.

Faculty of Law library introduced a pilot project of course-related information literacy instruction in March 2013. In this pilot project information literacy workshops were organized for four seminar courses for students from 1st to 4th year of study (5th, final year, does not have seminars). Each seminar course was divided into two groups – one that took part in the IL workshop, and a control group. Four 90-minute workshops were organized (one for every seminar course) and altogether 89 students took part in them. Workshops were evaluated through exit evaluation surveys and 96.6% respondents indicated their satisfaction with the workshop. The evaluation of IL outcomes will be carried out through citation analysis of student seminar papers and a consequent student questionnaire on resources used during writing the papers, as well as the professors' feed-back on the quality of resources used by students. Results of seminar groups subjected to IL instruction will be compared to those of control groups.

In academic year 2013/14 both libraries plan to create official programs of information literacy for their institutions which will be presented to the Faculty Boards.

Originality and Value

These are the first academic IL instruction programs at the University J. J. Strossmayer in Osijek and the results from these projects are reported for the first time to wider audience.

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***Keywords**: Academic libraries, information literacy, Faculty of Law, Faculty of Humanities and Social Sciences, Osijek, Croatia*

The Information Seeking Behaviour of Law Students at Adekunle Ajasin University, Nigeria

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Information seeking is a daily activity that is generally involves people across disciplines and professional groups, vocations and skilled occupations (lecturers, medical doctors, lawyers and students). Law students, in preparation for their work environment, need to gain the information seeking skills necessary to cope in an information-reliant profession such as law, while still studying at the university. Law students seek information for various reasons in their studies while using different approaches because as students they depend primarily on tangible information materials to achieve educational success.

The overall purpose of the paper was to investigate the information seeking behaviour and ICT utilisation skills of undergraduate law students of in the Faculty of Law at Adekunle Ajasin University, located in Akungba-Akoko, Ondo State in Nigeria. Information for this paper was gathered through a review of the literature and a survey, using questionnaires, observation and interviews. The literature reviewed was based on the study research objectives.

Methodology

The population consisted of the law students of the Faculty of Law as well as the librarian in the law library. Purposive sampling was used to select the law students and key informants. The sample size consisted of the 356 (100%) law students, one lecturer and a librarian. Three hundred and fifty six students in the Faculty of Law were targeted using a questionnaire consisting of twenty-three structured and unstructured questions to solicit information. One hundred and six questionnaires (30%) were completed, returned and used to analyse the data.

Findings

The major findings showed that law students have positive attitude towards the library and are willing to patronise the law library. 53% of the respondents indicated that they had skills to effectively search and retrieve information. The major reason for seeking information was to become more knowledgeable about legal issues (79%). Most respondents still favour the use of traditional information sources and services: text books, (71%); books on legal issues, (68%); the law library (67%), while 58% prefer to receive information in both print and electronic formats. Awareness of electronic resources in the law library was low with (42%), 58% respondents were unaware of its existence, while (61%) use Internet "only when necessary". Access to Internet was obtained mainly through mobile phones (66%) and only (5.6%) accessed the facilities in the law library.

However, 78% claimed to have the required skills to effectively search information on the Internet. The majority (79%) indicated that they can independently search the Internet and databases. When tested through observation of their competence, it was found to be a correct evaluation of their skills. Challenges experienced by the law students include: No ICTs available in the law library (43%), inadequate skills to search effectively (24%) and the slow speed of the Internet (14%). It was also revealed that the resources kept in the electronic library within the law library are not accessible and therefore under-utilised.

Conclusions and Recommendations

The paper concludes that law students in Adekunle Ajasin University are well disposed towards the law library and are well grounded in using ICTs for information retrieval. However, the inadequate electronic resources in the law library seem to prevent good patronage of the library. Recommendations were made that the government should adequately fund the library with the necessary ICT sources and resources. The law library should create more awareness of the electronic sources available in the library. Information literacy should be made part of the academic curriculum to law students through all levels. Law students should endeavour to learn information search skills in the course of their training.

Keywords: *Information seeking behaviour, ICT utilisation skills, law students, Nigerian University*

Empowering Information Literacy Continuing Professional Development of Librarians: New Paradigms for Learning

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Introduction

Information professionals play a key role in facilitating and advocating the development of information literacy in educational, organizational and everyday life contexts. However, their information literacy continuing professional development (CPD) needs have not attracted sufficient attention in research (Hedman, 2005).

Aims and Objectives

This qualitative study explored librarians' perspectives of information literacy within their working practices and their continuing learning opportunities offered at work. It sought to answer the following research questions: What is the meaning of information literacy for librarians? Are there any particular areas in which they need to further develop in terms of their information literacy skills and what support is offered by their organization? Are there differences between professional and non-professional librarians and those who belong to the digital generation in terms of their perceptions and engagement with information literacy CPD opportunities?

Methodology

The paper reports on the preliminary findings of semi-structured interviews with seventeen professional and non-professional librarians (based on self-perception of their role) who had different levels of experience. A distinction was also made between librarians in terms of their membership in the digital generation (born after 1980). The participants were recruited by means of convenience sampling with the majority of them drawn from a Scottish university library school alumni list. The study used an interpretative research approach and interviews were based on mostly open ended directional questions which sought to explore perceptions, practices and needs in context. All interviews were transcribed verbatim and were manually analyzed following the constant comparison method (Crabtree & Miller, 1999).

Results and Conclusions

Librarians' definitions of information literacy offered almost holistic interpretations of the concept but they gave less importance to the role of personal information literacy development for their working practices. Participants felt confident about their own information searching competencies and considered their current experience or earlier library school education sufficient to cover their needs. However, information and digital literacy were perceived as interconnected skills with the latter requiring ongoing development. Participants also highlighted the need for support towards CPD as opposed to training that is focused on formal role descriptions. Expected and actual working practices did not always match and librarians experienced incidents of blockage to their CPD due to leadership style and lack of resources. This study postulates that taking advantage of the affordances offered by technology may empower librarians to engage in online continuing learning and overcome potential barriers created by declining organizational resources and financial instability. In the same way that libraries are expanding beyond their physical space, librarians' CPD can transcend geographical borders though online independent learning.

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Keywords: *Librarians, continuing professional development, information literacy, digital literacy, online learning*

Game-Based IL Instruction – A Journey of Knowledge in Four Acts

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In this paper, we present an approach to teaching information literacy – one of the key skills of the 21st century – to a new generation of students, the digital natives (Prensky, 2001), through game mechanics.

In order to improve information literacy instruction, we will first investigate what causes students' motivation to decrease. The joy of learning is a form of the emotion of joy and an essential component of learning motivation. It is rooted in our behavior because interest (or curiosity) is designed as a universal innate desire (e.g. Korner & Beason, 1972). This active engagement of children with the environment is intrinsically motivated and, therefore, a self-motivated action. But often, students lose motivation throughout their schooldays. Cognitive-motivational process models attempt to clarify which mediators are important increasing learning motivation. The flow experience (Csíkszentmihályi, 1991) stands out as a crucial mediator in these models. Here, a task is not completed due to extrinsic rewards, but rather due to intrinsically motivated processes. Losing oneself in a joyous activity can happen anywhere where a task is performed with pleasure and intensity, regardless of the time spent. Appropriate examples can be found in the fields of arts and playing games.

Human beings learn important patterns to secure their survival for thousands of years through playing. With the emergence of the digital revolution, humans underwent a renaissance as homo ludens (Huizinga, 1955). The potential of game mechanics has been recognized in many non-playing contexts. Gamification as a term summarizes the use of game mechanics and dynamics in non-game contexts (Zichermann & Cunningham, 2011). The use of extrinsic motivators to address intrinsic needs is adapted from goals in game environments.

It stands to reason, then, that today's generation of students, which has grown up in an environment dominated by technology, ought to be accommodated in this way. The use of game mechanics in educational environments provides an opportunity to make learning more interesting, to arouse curiosity, and thus, to successfully provide essential knowledge. By using a course on knowledge representation as an example (Knautz, 2013), we show how information literacy can be taught with the help of game mechanics and dynamics. We have developed a complete conception based on specially structured class lectures as well as an implemented online platform. All tasks are embedded in an epic story that takes place in four acts. Essential elements are rewarding students for correct problem solutions and giving them a constant overview of their skills and knowledge. Points, levels, achievements, etc. are mechanisms to provide feedback on what they have achieved and target human needs like competition or status. An analysis of point distribution and task status allows teachers to detect knowledge deficits of students and retarget problematic topics. Furthermore, high-achieving students benefit from special and more difficult tasks. The use of game mechanics to teach information literacy allows us to break up rigid educational structures and attract the interest of digital natives – a chance which should be seized.

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Keywords: *Information literacy instruction, knowledge representation, digital natives, flow, gamification*

Media Information Literacy: The Prospective of Saudi Blind and Visually Impaired University Students

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We live in the information age where information resources are increasingly available; however, it is now very hard to find high-quality information in a fast and affordable way. It is not enough to be able to use information technologies to find and manage information. An individual should not only be able to critically evaluate information but also be able to apply found information in problem solving. The concept of information literacy was first introduced in 1974 by Paul Zurkowski, as "People trained in the application of information resources to their work can be called information literates" (Behrens, 1994). Recently, information literacy has been defined as a set of basic competencies that should be used by everyone (PAG, 2001; Muir & Oppenheim, 2001). CILIP in its latest definition of information literacy described it as "knowing when and why you need information, where to find it, and how to evaluate, use and communicate it in an ethical manner" (CILIP, 2005). People obtain information using all of their senses but sight is the most important sense, where 80% of information queried is by it (Willetts, 1997). For blind and visually impaired people dealing with information using computers and other devices, they encounter not only conceptual difficulties of how to narrow down a topic when searching for information but also difficulties in adjusting themselves to the screen. Even more, at times they are not able to locate something as basic as the search button because of the design complexity of the screen. The current study aimed to shed light on blind students' media information literacy in Saudi Arabia. The scope of the research was to establish the nature of the media information status and experiences by Saudi blind and visually impaired people. There are 300 blind students at the three government universities in Riyadh, and this research was conducted on all 300 blind and visually impaired students attending the 3 government universities in Riyadh. The study used International Media & Information Literacy Survey (IMILS), which was designed to provide information about the views of participants on media and information literacy. The survey starts by assessing the media and information literacy skills possessed by participants along with some demographical information. It then investigates the difficulties they face to use information successfully.

Preliminary analysis of data showed that blind people ranked major search engines such as Google and Yahoo as the top resource consulted, followed by social networks sites such as Facebook and Twitter. However government websites and both the library and librarians were ranked the lowest. When evaluating information, currency and trust were the main consideration by blind participants while whether or not a librarian mentioned the web resources was not a point to consider during evaluation. As expected, the most common application tools used to support search process by blind people were Voice over Internet Protocol (e.g., Skype) and microblogs such as Twitter. The least commonly used tool were photo sharing site such as Flickr. In relation to obstacles blind people face when undertaking a search, the most common were having to sort through all the irrelevant results, evaluating the outcome of the search, and narrowing down the area of search. Starting, defining, and ending the search were ranked as the least difficult tasks. It could be concluded that blind and visually impaired people are at greatest risk of being socially excluded as a result of poor access to information. Preparing a national strategic plan for Blind Media Information Literacy is a very important for their social inclusion.

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Keywords: *Media and information literacy, blind, visually impaired, Saudi Arabia*

Analyzing the Intellectual Structure of World Information Literacy Literature through Citations and Co-citations

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Information literacy, which is defined as recognizing information when it is needed and having the ability to use the needed information effectively (ALA, 1989), is one of the emerging topics not only for the field of library and information science, but in other disciplines ranging from computer sciences to education as well. Many kinds of literacies, such as computer or network literacies, have been created with the diffusion of the term "information literacy". Concordantly, it has become one of the major research trends for many areas in recent years. This paper aims to evaluate the field of information literacy by using bibliometrics and scientific visualization techniques. To achieve this aim, we identified a total of 1.218 papers which is related to information literacy on *Web of Science* (*Science Citation Index, Social Science Citation Index* and *Arts & Humanities Citation Index*). Searches were carried out on April 23, 2013 by using the term "information literacy". All metadata about authors, affiliations, journals and keywords were unified and standardized to be able to make reliable evaluations. The results of the study are divided into two parts; citation and co-citation analysis. Publication and citation counts and their distribution to categories, countries and organizations, document types, number of authors and co-authorship, cited half-life and reference counts are main sections of the citation analysis part. Document, author and journal co-citation analysis of identified papers are main elements of the co-citation analysis part. In addition to co-citation analyses, the network of keywords was designed to show main trends for information literacy field. CiteSpace and VosViewer tools were used to analyze and visualize maps for the co-citation part. Major subjects, prominent articles, effective authors and journals were shown with the co-citation maps.

The information literacy competency standards (ACRL, 2000) developed by the Association of College and Research Libraries appear to be the most cited work in the information literacy literature, although it is not indexed in the Web of Science. The review entitled "Information and digital literacies: A review of concepts" by David Bawden (Bawden, 2001) and the book written by Christine Bruce; "The Seven Faces of Information Literacy" (Bruce, 1997) are the next highly cited works in the information literacy network.

Results about co-cited authors show that it is impossible to create a co-author map for the field. The most co-cited author is identified as Maria Pinto, however, the frequency is only 16 for 1,194 papers.

The preliminary findings show that information literacy is one of the areas which is given importance by many different research fields. Findings of this study are important to reveal the interdisciplinarity of the field of information literacy and its pioneers.

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Keywords: *Information literacy, citation analysis, co-citation analysis, mapping, visualization*

First-Year Students and the Research Process: Hearing Students' Voices

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Westminster College librarians used retrospective interviews to investigate how first year students conduct research. First year students were interviewed shortly after they completed a research project. The interviews were transcribed, coded and analyzed. The results provide insight into students' research processes and how they view their research efforts.

The use of qualitative anthropological research methods to examine research behaviors is on the rise in academic libraries. The University of Rochester was an early adopter, publishing *Studying Students: The Undergraduate Research Project at the University of Rochester* in 2007. Much of their investigation centered on the design of site-specific services and spaces. Other authors have conducted ethnographic studies on student research, focusing on students' general perceptions of research or on the tools and resources available to them. Our research focused on process. While the findings are, by the very nature of this kind of ethnographic work, Westminster-specific, we discovered a narrative of student research behavior that has generalizable elements and complements the growing body of anthropological research on student culture. Themes uncovered include: how students select research topics, how they conduct their research, who they ask for help, and how they define a successful research project. The paper gives students a voice and includes direct quotes from our interviews.

Findings include insights on the role of prior experience and knowledge in topic selection, the complex network of help and support that some students develop and the relative lack of importance students place on citations. Students discussed difficulties finding information sources on their topics. Follow up questions revealed that a student might attribute a lack of success to a lack of available information while the librarian researchers were able to deduce that the students' search strategies were probably more to blame. Findings of this nature present opportunities for librarian intervention at key stages in the process. Librarians were also able to gauge students' confidence with their research abilities and to compare this to their cited sources, finding some students report high confidence levels that do not match their work quality. Others are not confident in their abilities but their papers evidence quality research. Perhaps, the most important finding was that students who were unsuccessful at one stage of the research process were generally unsuccessful thereafter- pointing to the importance of scaffolding research assignments. Knowing the importance of scaffolded assignments, librarians can and should work with faculty to encourage scaffolding research projects. This conclusion highlights the importance of librarian and faculty member collaborating to teach information literacy.

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Keywords*: First year students, research process, ethnographic study*

Activity Theory as a Framework for Understanding Information Literacy

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Information search can be viewed as a simple or indeed trivial activity in the sense that it is easily mastered by individuals. However, it can also be seen as a complex activity requiring special skills. The latter view implies that methodological and theoretical questions must be dealt with in order to know how to address the problems of information search and, therefore, to input the processes and skills underlying such activity. This activity is motivated by the desire to satisfy an information need dependent on the cognitive (declarative knowledge, procedural knowledge) and psychological (feelings, thoughts, etc.) states of the individual. It is oriented towards the objective of finding the relevant information among the information provided in the environment which is to be explored, an environment often offering a variety of search tools and information sources (documents, work colleagues, experts, etc.). These few arguments in favor of complex activity place information search on a more general problematic, namely, Information Literacy (IL) with whatever it implies regarding acquired social and individual skills. The literature concerning IL provides a considerable number of definitions based on the dominant assumption that IL is essentially the knowledge of the procedural steps for the search, use and production of information. Others definitions focus primarily on the ability to "filter" information in order to rule out what is not relevant. It is a difficult task with which Internet users are confronted with daily.

The aim of our work is not to design an information literacy model, but to understand and define the underlying literacies required for the success of the information activity. We discuss the value of re-examining the information behavior models in order to understand the skills and motivation necessary for the performance of different types of information activities. We also determine the benefits to be gained from the use of activity theory. We will begin by reviewing some results of research on Information Behavior and Information Literacy, by focusing on identifying outstanding questions regarding these behaviors and their consideration in information literacy programs. The Engeström model, as a form of conceptualization of the activity structure, will be essentially explored to grasp the inter-relational elements in an information activity. The informations gathered from the analysis of informational activity can help to design information literacy programs tailored to the contexts in which they are applied. They can also help the development of information environments which are appropriate to the expectations and needs of different users. Finally, we will use the ideas developed to analyze an example of training in information search.

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Keywords: *Information literacy, information behavior model, activity theory, information activity*

Joining Conceptual Approaches to Foster Media and Information Literacy: Putting Principles to Work for Online Information Access

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Since the 1990s, the concept of an information literate person is understood to be a full citizen in an "information society". There is a need for everyone to increase awareness and good practices in her/his information activities. Educational considerations of information has led to competency frameworks, but some skill guides reduce IL to a set of "how to" skills, blurring conceptual knowledge in the field. Early "best practices" teaching programs have underlined some standards of excellence, but such standards contrast with the urgency in which information activities are carried out using information and communication technologies (ICT). Information behavior studies inspired models of information activities but do they still fit with actual information activities as they are performed by people, especially in professional settings and in everyday life? Nowadays, most of our information activities do not begin with conscious information needs and many of them are a kind of routine. The usual word "information" reflects a controversial concept (see, for example, Hjørland, 2009). Its common understanding refers to objects or things, and the process of informing or the result of such a process, sometimes considered as "knowledge".

Media Literacy focuses on information supports as medium and the way messages they carry are produced and aimed at particular audiences. The notion of media, and more specifically digital media literacy, can help express knowledge which nowadays underlies what we consider to be "information literacy". More than ever in our digital age, information practices are deeply tied to mediated communication.

After a review of different definitions of information, we examine some central concepts of IL (information needs, information sources, relevance) and some concepts of Media Literacy. A comparison between concepts and models which have been discussed in media studies *versus* information science is of some help to lighten fundamental issues for Media and Information Literacy.

To exemplify the discussion, we focus on a specific case: web search engines. Many studies emphasize the role they play in today's information practices. Web search engines have developed strategies which seem make more or less obsolete classical IL requirements by putting emphasis on user experience and satisfaction. Search engines are usually considered as efficient and powerful tools. Teaching information skills often includes how to use them efficiently. However, search engines are not just tools, or instruments we use to access online information. We argue that considering main commercial search engines as media with an editorial policy (which is implemented in algorithms) gives some cues for information education. Joining media literacy and information literacy seems highly relevant, especially for online information access.

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Keywords: *Information, conceptual approaches, search engines*

Defining Information Literacy Competences in a Professional Framework of Library and Information Professionals in Croatia

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Competences are at the centre of an integrative science of lifelong learning and they are a bridge that allows passage between areas of education and the workplace. Recent studies about core competences in library and information science (Fisher, Hallam & Partridge, 2005; Orme, 2008) show that a core is taking shape that is predominantly user-centered and that information literacy instruction, information resources & retrieval, and digital literacy are the most vital competences for the modern library and information professionals. It is generally recognised that information literacy competences are essential capabilities to remove the obstacles toward the efficient knowledge management and independent lifelong learning.

The paper presents the main findings of a research conducted with aim to explore and to propose a professional framework for library and information professionals in Croatia. Two online surveys were conducted among key library and information stakeholders in Croatia. A part of *Tuning* methodology was applied for purpose of identifying subject-related and generic competences in library sector in Croatia. Three separate online questionnaires were created, one for academics, second questionnaire for graduate librarians and the third questionnaire for library directors as employers. Respondents were asked to rate 21 subject-specific and 14 generic competences in aspect of their importance for profession and the level of the achievement during the study. In total 16 academics, 216 graduate librarians and 113 library directors, responded to online surveys. Research results revealed that all respondents agreeded to one distinctive core of subject-specific competences in the field of library and information science in Croatia which consists of user-centered and information-based competences, and which are identified as information literacy competences (Machala & Horvat, 2010). The core competence *information searching & retrieval* had an average rate of 4.92 for its importance, closely followed by *providing information to users* (4.91) and *mastering information skills and resources* (4.89 of 5-point Likert scale). Information literacy competences are equally highly valued by labor market stakeholders as in academia, while subject-specific competences within the curriculum periphery point to significant statistical differences in opinions among all three research groups. Generic competences were highly rated by all respondents with an average rate of 4.83 equally for most important generic competences *mastering computer skills* and *information management skills*.

Research results will serve as a starting point for further analysis of information literacy competences as a central part of a recommended competency framework. A competency framework is seen as a tool to bridge the gap between differences in existing national academic frameworks and national continuing professional development curriculum and as a cohesive element for a holistic approach to an integrative process of lifelong learning for librarians.

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Keywords: *Information literacy, core competences, library education, continuing professional development*

The Information Literacy Self-Efficacy of Disadvantaged Teachers in South Africa

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South African education is constantly under the spotlight for its poor output despite the fiscal commitment to education being much more than that of other BRICS countries. Since the inception of a new curriculum in 1997, there have been challenges to the way it has unfolded in South Africa, to the curriculum's radical views on why knowledge is not stipulated, and to the assumptions it made about teachers' capabilities. The curriculum implies that schools have access to a range of information resources. One of the cross-curricula outcomes states that learners will be able to collect, organise, analyse and critically evaluate information. The irony is that 80% of schools in the Western Cape Province, where the study was conducted, are without functioning libraries or librarians. The onus then surely rests on teachers to mediate information literacy (IL) in the classroom.

Against this gloomy background, the researcher undertook to investigate teachers' IL. The 29 volunteering teachers were participating in an information literacy education (ILE) course, one course in a school librarianship programme. The participants came from a mix of urban and rural schools and their average age was 46 years. One common element was that the schools they represented are some of the poorest in the country.

The research questions asked: 1) How do teachers understand IL and ILE? 2) At what level are teachers' Web knowledge and skills? To what extent can an intervention change teachers' beliefs about mediating IL?

The datagathering tools, amongst others, were interviews and the 28-item IL self-efficacy questionnaire developed and refined by Kurbanoglu, Akkoyunlu and Umay over a period of a few years (2003 - 2006). The decision to incorporate the self-efficacy questionnaire in the study relates to the influence that self-efficacy can have on the participants' determination to persevere in the course. Part of the course addressed the role of motivation in learning and in developing IL amongst children and adolescents.

The study achieved its purpose in showing in a nuanced way that teachers, having undergone ILE, could teach their learners IL to a greater or lesser extent using a guided inquiry project. The course intervention saw participants progressing from a limited, unclear understanding of IL to having a satisfactory grasp of IL and ILE. Initially, using Web-based information was a great challenge. Overcoming the Web barrier boosted teachers' self-confidence and propelled them into a new world of information.

The study concluded that teachers need information literacy *education* which is not yet part of either pre-service or in-service teacher education. A 21st century teacher should be conversant with information on the Internet but often teachers are not, due in part to the historical effect of teachers' unequal access to information.

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Keywords: *Information literacy, information literacy education, teacher education, self-efficacy, guided inquiry, South Africa*

Approaches and Perspectives on Assessment of Information and Media Literacy Related to Formal Education

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The various developments related to digital media in the last decades, especially the ubiquitous availability and use of information and communication technologies (ICT) has also resulted in a growing importance of ICT-related competencies. Yet, a common understanding of required skills does not exist up to now, and even in terms of terminology there is no real agreement. Existing initiatives under terms such as information literacy, media literacy, and media competency do not only present differences in understandings of terminology, but also in terms of the underlying theories and approaches (cf., Zylka et. al. 2011). As a consequence, agreed standards related to media literacy education are missing – not only in basic but also in higher education. This affects the development of assessment schemes and instruments for information literacy and media competencies.

This article focuses on the research area of teaching and assessment of media and information competencies. When it comes to the assessment of skills and competencies of teachers, the knowledge dimension is assumed to be the most important predictor of competent behavior, so the approach of pedagogical content knowledge (PCK) and technological pedagogical content knowledge (TPACK; cf., Schmidt et. al., 2009; Mishra and Koehler, 2006) has become well-known in this context over the last years. This article adds to the field of media and information literacy assessment in formal education by introducing results of the English and Portuguese version of a German questionnaire for the assessment of procedural and declarative ICT knowledge, the ITK.basic. The ITK.basic is based on a selected set of items, and it has proven to meet high standards with respect to reliability, validity and objectivity in its German version for a sample of teachers, teacher trainees, and teacher students (cf., Zylka, 2012).

In this paper we present the results for an application of the IKT.basic in engineering education, focusing on a group of university teachers as well as engineering students. Based on these results we discuss the applicability of the ITK.basic in different cultural domains, and we draw connections and present perspectives of the measurement of media and information literacy. This topic is on the one hand related to methodological issues, but on the other hand is also addressing curricular, content-and context-specific issues.

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Keywords: *Media Literacy, information literacy, assessment*

The Impact of Information Literacy Education for the Use of E-Government Services: The Role of the Libraries

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Over two decades, "a global phenomenon e-Government" (Jaeger, 2003) has transformed the traditional bureaucratic model and offers a new way of interaction between citizens, business, and public administration. Some of the important issues in this context are:

- new public management, the reinventing of government, and e-government initiatives (Schedler & Scharf, 2002)
- the anticorruption effect of e-government (Bertot, Jaeger & Grimes, 2010)
- e-government and the good governance (Okot-Uma & London, 2000)
- information technologies and the administrative reforms (Kraemer & King, 2006).

Within the theoretical rethinking of the philosophy of e-government, many researchers have analyzed the social aspects of e-government development and problems concerning usage of e-services - digital divide, e-inclusion, e-access, e-accessibility, personal data protection, e-readiness. Some of the difficulties connected with the use of e-government services are technological – the need for a broadband network, Internet access, computer, e-signature; – other difficulties are educational – lack of IT skill, information literacy, e-government skills; yet another difficulty involves psychological barriers in using ICT.

Information literacy education in the context of e-government and the use of e-government services, viewed as a part of library and information service, is a less explored but very important topic. The paper discusses the low level of the use of e-services by citizens in national and international contexts, due to different reasons, including lack of information literacy. For the purpose of the analysis and to understand user acceptance of new information technologies (in this case - e-government), the author applied "The Unified Theory of Acceptance and use of Technology" (UTAUT model) proposed by Venkatesh, Morris, Davis and Davis (2003), validated for the use of e-government by Wang and Shih (2009). The conclusions of the paper illustrate that the insufficient use of e-government services could be changed with the active role of the libraries as e-government intermediaries, providing information literacy training programs in e-government issues.

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Keywords: *E-government education, information literacy education, e-government skills, public libraries information literacy programs, LIS programs, library qualification, UTAUT model*

Empowering through Information Culture: Participatory Culture, a Stepping Stone? A Theoretical Reflection

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The Alexandria Proclamation adopted by IFLA and UNESCO in November 2005 defines “information literacy” as a mean to “empower people in all walks of life to seek, evaluate, use and create information effectively to achieve their personal, social, occupational and educational goals”. Referring to the access to more power, and overflowing from the academic sphere, the "power of information" is presented as an aid for the social integration of individuals, allowing them to access the knowledge they need to improve their everyday lives and reach their full potential.

In this proposal we will explore the role of “information culture” (used in preference to “information literacy” in the French context, with emphasis on the social and cultural dimensions of this "culture") in empowering people in relation to the field of library and information science, at the time of networks and web 2.0. We will focus on the ongoing changes, including the phenomenon of digital convergence and the hybridization of cultures (digital, media, information culture) that accompanies it. These changes are at the origin of a participatory and contributive culture, often presented as an opportunity to increase the "ability to act ", providing more control over contents.

After defining the concept of empowerment - a concept that needs to be used with caution - we propose to examine the ongoing shift in the approach of information, from the individual to the collective, “from individual expression to community involvement”, and the changes in the way of thinking information culture over. Are “social” media fundamentally different from “old” media? Are they really at the origin of a revolution in practices, introducing more horizontality in the interactions and in the dissemination of information, promoting connective thought and non-formal knowledge capitalization? Are they a new area of knowledge and a stepping stone to becoming creators of contents and knowledge (*versus* merely consumers)? We will question these claims about the potential of participatory culture in terms of empowerment through information culture. Doing so, we will discuss information culture as an initiatory process informed by experience (embedded in social-cultural practices) and as an introduction to the world of information-documentation (in the sense of “becoming a member”, in an anthropological meaning).

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Keywords: *Empowerment, information culture, information literacy, participatory culture*

Media Didactics in Higher Education: Oriented Media Education

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Media Education, declared by the UNESCO to be one of the priority directions in the pedagogy of the 21st century, is confident enough in the field of modern Humanities and as an integrative discipline. This is evident from media education theories, the creators of which represent various fields of science.

Introduction of media education strategies, (especially those aimed at forming a media culture) into educational process to be an essential part of the future specialists' professional culture, is fundamentally a new concept in higher education. Due to this, it is urgent to implement media education into higher education through integrating media education technologies into future professionals' training.

The following challenges of didactics are considered to be traditional: description and explanation of learning process and determining the condition of its realization; development of contemporary strategies of learning processes; educational processes; new training systems; and new learning technologies. In selecting both methods and forms of education, the principles of common didactics (the most important among them being the principle of clarity; the principle of consciousness and activity; the principle of availability; the principle of scientific approach; the principle of individual approach; the principle of consistency and sequence; the principle of durability in mastering knowledge, abilities and skills; the principle of interrelation between the theory and practice etc.,) are governing since in their unity they objectively reflect the essential patterns of learning.

Each academic discipline has its own characteristics and patterns, which require their own special methods and organizational forms of learning. These issues are covered by particular didactics or teaching methods. Researchers state that all particular didactics are pedagogical studies that are based on the same principles explained in general didactics. Nowadays there exists 'particular didactics' for different categories of students in different types of educational institutions and educational forms (primary education methodology, higher school didactics). Since we are dealing with teaching different categories of students, we tried to unite 'particular didactics' into the concept of 'vertical vector' in ascending mode.

Networks of new information and communication systems have become a vital part of the present day life. Becoming a part of environment, they have an influence on the younger generation's education and upbringing, seriously competing with schools and universities. Through integration with teaching material in the classroom, media texts taken from newspapers, radio, television, and the Internet become an essential part of the education system, which sometimes enhance the educational and training system and teaching qualities. That means that media texts become important sources of professional improvement.

Each training method has its own horizontal' scope since it is aimed at teaching a certain subject. Partial didactics of 'vertical vector' complete their tasks by interacting with the didactics 'horizontal' vector. This report deals with both media didactics and professionally-oriented media education in higher education as new and promising phenomena in education.

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Keywords: *Media education, professionally-oriented media education, media literacy, information literacy, media didactics (press-didactics, TV-didactics, radio-didactics, Internet-didactics, media-didactics, film-didactic), higher education media didactics, media education development vectors, media competence, media culture, technologies of media education, professionally-oriented media education, specific teaching methods*

Strengthening Information Literacy Competencies through Incorporating Personal Information Management Skills

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Various information literacy (IL) models and standards have been developed by different agencies to provide a framework for IL education. A review of existing IL standards indicates a gap or an inadequate emphasis on the management of retrieved information. For example, the *Information Literacy Competency Standards for Higher Education,* developed by ACRL, covers skills related to students' ability to identify their information needs, access, evaluate, synthesize, and ethically use the gathered information. Although it mentions a skill to 'incorporate selected information into one's knowledge base', its actual emphasis is on information summarization, synthesis, and repackaging. Similarly, in the *Seven Pillars of Information Skills,* one of the pillars is on 'manage' information. Once again, this pillar does not actually cover the proper management of the retrieved information rather its ethical use, use of bibliographic tools, and social responsibility to help others with the needed information.

The emergence and popularity of electronic information sources has empowered information users to easily identify, select, retrieve and download information from multiple sources. However, in the absence of appropriate skills, the management of retrieved documents can become a nightmare. That is why, in addition to standard IL skills, an information literate individual should be able to effectively undertake certain Personal Information Management (PIM) activities. It is because 'information literacy' and 'personal information management' are two closely related and overlapping concepts and in the absence of one the other cannot achieve its full benefits. A closer examination of IL skills would reveal that some of the PIM concepts are well grounded in information literacy activities.

Jones (2008) defines PIM as a set of activities people perform to acquire or create, organize, maintain, retrieve, use and distribute the information needed to meet life's many goals and to fulfill life's many roles and responsibilities. The need for PIM becomes even more pressing due to the inability of individuals to accurately recall the huge number of information pieces they have previously seen, used or stored. An associated problem is of 'information fragmentation' where information may be scattered into different files, folders and devices. This fragmentation may result in the wastage of time and effort in locating the needed information or even losing it all together. Only proper PIM skills can help overcome the problems of information loss, information fragmentation and retrieval delays. A thoughtful integration of IL skills with appropriate PIM skills is likely to save time, money, energy and efforts of an individual. Thus the inclusion of selected PIM techniques and tools into information literacy training can significantly improve its impact and benefits. This concept paper argues that IL standards and models should adequately cover certain personal information management skills to provide a more comprehensive skill set to information users. Incorporation of PIM skills is likely to strengthen the existing information literacy standards as well as empower information literate individuals with more skills to effectively complete their information tasks.

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Keywords: *Information literacy, personal information management, IL standards*

A Research Based Framework for Developing Information Literacy Projects

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This paper presents one of the objectives of the international project "Development of New Information Services for Moldovan Higher Economic Education - CPEA 2012/10091" developed between Moldavian Academy of Economical Sciences, Chisinau, and the University Library of Bergen Norway and Transilvania University of Brasov, Romania. The expertise of Norway and Romania is transferred to Republic of Moldova.

The survey "Improvement in Information Literacy for Users of the Scientific Library in Moldavian Academy of Economical Sciences" (MAES) was conducted between January – March 2013. The purpose of the study was to identify the role of the library in developing the Information Literacy skills among students, teaching staff and researchers, and to study the educational needs of consumers in the new international context.

Three working hypotheses were established:

- Competency levels in the field of information use of the MAES students are low.
- Users' training has a significant impact upon the academic success of the students.
- Including the subject "Information Literacy" in the curricula contributes to the improvement of education quality.

The 1004 respondents came from six faculties and included 20 specialties from MAES. The on-line questionnaire Survey Monkey was used as a research tool.

This survey revealed the knowledge level in Information Literacy of different users' specialities and ways to improve the training process of future specialists based on the "Information Literacy" curricula that will be developed as a follow-up to this research. The survey also offered us important information for identifying the aspects requiring the highest degree of attention in changing the content of users' activities. The research results will represent the basis of an Information Literacy development program, aiming to improve the higher economic education in Moldova.

This paper presents a model for the evaluation of users' needs adapted to the conditions of a developing country that has access to traditional literature and great potential for exploiting available sources on Internet, but does not yet have documentary or bibliographic database access.

Keywords*: Information literacy, international projects, users' needs, Moldova, Norway, Romania*

Is Information Literacy Enough for a Knowledge Worker?

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The concept of information literacy (IL) recently developed within the library and information science (LIS) community is incompatible with the needs of modern organizations. Sheila Webber (2008) states that "Information literacy differs" and indicates "progression in information literacy each year!" while SCONUL Working Group emphasize in its publications (2011) that every year "we live in a very different information world". Therefore it is expected that a new, continuously updated model of IL retaining its basic principles will be created.

In the context of knowledge society, knowledge-driven economy, knowledge-intensive organizations (KIOs), knowledge management systems etc., one of most interesting information user communities appear to be 'knowledge workers', usually identified as those performing knowledge-rich jobs or, in other words, professionals whose position relies on their ability to find, synthesize, communicate and apply knowledge (OECD, 2001).

Any information literacy development should be considered in the context of broad information landscape in which an individual operates. What is then the information landscape in which knowledge workers operate and what is their personal and organizational IL landscape? What types of "information" are important for them? What differentiates knowledge workers from other information users - aptitude, background and experience, aims, skills, knowledge, knowledge sharing behaviors, personal qualities of researchers at different stages of their careers? Is IL enough for a knowledge worker or does the term 'information fluency' or 'knowledge literacy' appear to be more relevant in this case?

"In the knowledge-based environment the concept of information literacy moves towards a concept of knowledge literacy …" (Materska, 2004). The latter term has not been very popular, it appears in different and complicated contexts without clear definition. There are some proponents of "knowledge literacy" in the field of knowledge management (e.g. Ferguson, 2009), in particular knowledge-based organizations (Sheridan, 2008). In his guide Sheridan proposes an inspiring concept of so-called "inferential operators", i.e. various cognitive processes whereby one develops an understanding of any issue(s) or a resolution of any problem(s) – an approach which could be useful in the course of the analysis performed in the paper.

This paper attempts to clarify issues described above and answer the title question.

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Keywords: *Information literacy, knowledge literacy, knowledge fluency, knowledge worker, knowledge-intensive organizations*

Acquiring E-citizenship Skills in Disadvantaged Groups: Training of Housewives

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The digital divide is a major problem in the process of spreading e-government applications, the fundamental stage in creating an information society. Gender seems to be one of the main reasons that exacerbates digital divide (Merrit, 2011; Lin, Tang & Kuo, 2007). According to the statistics of 2012, 6% of women who are categorized as "unpaid family worker" are computer users. The average number of housewives who use the computer and the Internet is 20% in Turkey (Turkish Statistical Institution, 2012). The ICT skills training and courses offered for disadvantage citizens (seniors, the disabled, unemployed people, immigrants and people with low-income) should be designed in accordance to their needs, abilities and potentials (Correia, 2002). These courses should also encourage participants to make use of their ICT skills as an active citizen.

This study aims at designing the essential skills to be taught in ICT courses that help housewives acquire active and social e-citizenship skills. The research questions are as follows,

- What transactions do women need and prefer to carry out online?
- What activities do they need to perform online for their social, individual and family needs?
- Which essential ITC skills should be included in the course program?

A 45-item questionnaire was designed in accordance with literature on ICT training and e-citizenship for obtaining data. The essential e-citizenship skills evaluated within the framework of this study can be categorized in seven groups, all related to individual's ability to meet everyday needs: e-government, e-banking, e-health, e-commerce, e-learning, e-interaction, e-employment, e-school and interest groups (Robinson, 2006; Adapting E-Learning, 2005; ECDL Foundation, 2006). The questionnaire was employed to the women who had completed an ICT course at Social Center of Ankara Municipality, a total of 329 participants from five different regions. Batıkent, being the most populated region with 168 participants, was then designated as the sample population of the present study. Forms were given to each participant. Statistical methods were used to analyze the participants' responses to the survey questionnaire.

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Keywords: *Life-long learning, disadvantaged groups, e-citizenship, ICT education, women, housewives*

Online Conversation: IL as Discourse Between Peers

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Anyone who has taught in higher education will tell you that students talk to each other a great deal of the time, in and outside the classroom, online and face-to-face. Furthermore, the value of discourse (student to student and student to tutor) as an educational tool, is well documented (e.g., Laurillard, 2002 and Osborne, 2010). The objective of this paper is to outline a fresh approach which seeks to harness students' predilection for communication by exploiting its value as a learning tool to teach information literacy (IL) in a new way. This approach was used in the first-year undergraduate core module *Research and Professional Development.* Inquiry-based learning (where students answer a set question), IL (particularly information discernment as defined by Walton & Hepworth, 2012) and e-learning (online peer assessment) were used to create active online learning opportunities where students learn by doing: they read, review, reflect and comment on others work (a draft essay) via a Virtual Learning Environment (VLE – an online system for teaching and learning which includes spaces for course materials, assignments and discussion). These online conversations were informed by face-to-face workshops (essay writing and IL - research, critical thinking, plagiarism and referencing) and the Assignment Survival Kit (ASK) www.staffs.ac.uk/ask - in short, blended learning.

This research was a collaboration between library and faculty (first piloted in 2006). Qualitative and quantitative improvements in students' knowledge were reported in Walton and Hepworth (2011; 2013). Full implementation commenced in 2007. Sample online discourse data were gathered for each cohort from 2007-8 to 2012-13 (n=120 - average). Assessment (n=32) and questionnaire data (n=98) were gathered in 2009. The average number of online comments made per 50 minute tutorial (typical size 15 students) was 54 contributions per session in 2011. Online peer assessment conversation indicated engagement as shown in online comments made by students as they seek to advise their peers on choosing good quality information e.g.: *"[...] include more [sources] that are more up-to-date." "[...] try to use academic references instead of autobiographies." "Your whole reference list is websites. Could you use books [...]? "*

The online discourse and questionnaire responses indicated that 'reflection-on-action' (Moon, 1999) occurred where students, through reading and digesting others online contributions, began to reflect more fully on their own work which, in turn, facilitated incremental deep learning (Race, 2001), particularly a sense of information discernment. Quantitatively, a comparison between formative and summative assessment results indicated statistically significant improvements in grades obtained prior to and post the online peer assessment activity (t (1, 74) = 11.380, p<.001). For assignment one, the mean across groups was 40.22% with a standard deviation of 6.50; for assignment two, the mean across groups was 57.92% with a standard deviation of 7.05 (Cleland & Walton, 2012). This paper shows that this approach not only produced a step change in student achievement, but brought together e-learning and IL in a new way to deliver a wider range of IL learning outcomes including information discernment.

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Keywords: *IL, online discourse, information behaviour, e-learning, online peer assessment*

Technological Developments and Information Literacy in Albania

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Nowadays information literacy (IL) has become more and more a world-wide phenomenon. This paper, which is divided into three parts, will give an overview of the information literacy movement and practices in Albania.

The first part will provide background information about technological developments in Albania. Democratic changes in the early 1990 increased the level of demands for easy universal access to information and more information sources. During the last 22 years, there have been demonstratively fast developments in the ICT sector. The implementation of new technologies: mobile communication, computer and internet usage, the increased number of Internet Service Providers, home internet users, e-Kindle etc., launched an information revolution with direct effects on everyday life; particularly the young generation has a tremendous interest on the Internet.

Increasing attention to IL is related to the growth of digital information. In the 21st century the technological developments have facilitated the access to huge amounts of information - information received at home or work, in library or in bars - and information literacy has become, more than ever before, the country's imperative objective. To respond to this digital environment, in line with government's vision for a "Digital Albania", many efforts have been done to create an information literate society. A lot of ongoing government projects focused on modernization, especially ICT in education, public institutions and public administration, have been initiated recently.

The second part traces the development of information literacy in Albania. It seeks to address the following question: "Is the term *Information Literacy* understood as a concept in the country?" It has to be said that in Albania the term *Information Literacy* has spread and is described/defined correctly, mainly among librarians and information professionals, but is not explicitly recognized by other communities.

The third and final part of the paper introduces the leadership role of the National Library of Albania in developing IL as a component of the lifelong learning process in Albania. Teaching information skills does not start at the elementary level (primary school); it is more central at the higher educational level. The process of becoming information literate has been focused mainly on computer literacy. Similar to other European countries, the IL movement has evolved from the National Library and is directed to: library education (formal education, contuining professional education, graduate study) and vocational training. In the last five years, various faculties started programmes on bibliographic instruction, internet search, search engines, and orientation lesson in the use of the library: catalogues, information resources, digitalized sources etc.

To conclude, in our days, when the Bologna processes are having an impact on the development of the Albanian curriculum structures, it is necessary to draw attention to the developments of IL at different levels in the national educational system. I strongly believe that IL as knowledge, more than skill, must be a part of the formal training during the whole educational process in Albania.

Keywords: *ICT, information literacy, education, libraries*

Theory of Action and Information Literacy: Critical Assessment towards Effective Practice

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This paper offers the approach of *theory of action* as developed by Argyris and Schön (1974), as an appropriate framework for analysing the practice of information literacy in academic institutions. In theory of action, contrasting theories are explicated, namely espoused theories and theories-in-use. The distinction between espoused theories and theories-in-use allow for the framing of questions about the conceptions which guide information literacy education and whether these are demonstrated in professional practice. Espoused theories of action were examined by investigating understandings and beliefs of information literacy and learning as seen in a range of policy documents of eleven academic libraries recognized by the academic library community for exemplary instruction resources. Theories-in-use were identified by analyzing information literacy practice via 150 online tutorials developed and utilized by these libraries. These documents and representations of practice were augmented by semi-structured interviews conducted with 12 practitioners of information literacy education in these libraries.

The research employed a constant comparison approach (Strauss & Corbin, 1998) to develop broad themes, subcategories and statements of claims from these multiple data sources. The in-depth analysis revealed: 1) explicit espoused theories of information literacy which coalesce around themes of knowledge creation and lifelong learning; 2) varied, less explicit and sometimes conflicting theories-in-use which emphasize engagement with information sources; 3) ad hoc levels of congruence in relationships between espoused theories and theories-in-use. Implications for practice include issues of pedagogy and instruction design towards consistency and congruence.

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***Keywords**: Information literacy, theory of action, academic libraries, Argyris and Schön*

Information Literacy Skills of Students at Paris Descartes University

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In today's age of abundant information, "a person must be able to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information" (ALA, 1989). These skills are also essential for students in order to carry out their studies.

In this paper, we describe a study in which we survey students enrolled in six different departments at Paris Descartes University Institute of technology (UIT). Each department offers different a diploma. For example, the information and communication department offers three specializations: Advertising; Information & Communication in the Organization; Books and Heritage, as well as three bachelor degrees in Library and Information Studies; Publishing; and Project Management in Communication.

The aim of this study is to understand how the undergraduate students deal with information. The data will be collected by using an online survey completed by the students during their first and second semester. This survey was adapted by a group of researchers (no name to respect peer review) from the Project Information Literacy research (Head & Eisenberg, 2010). It focuses on the research experience, information behavior and computer and Information Literacy Skills. The demographic questions were designed to explore factors that might have an impact on information literacy skills.

The goal of this study is to answer the following questions:

Are the French students well prepared to face the challenges of our information society? Do the age and gender of the students have an impact on their way of dealing with information? Is there any relationship between their information competencies and the type of baccalaureate (final secondary school examination)[1] they pass? Furthermore, is there a meaningful difference in IL skills among disciplines?

The answer to those questions will help us better understand the strengths and limitations of the national French curricula at the UIT and possibly suggest some rectifications to its weaknesses.

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Keywords: *Information literacy skills, LIS students, undergraduate students, France*

[1] "*The general baccalaureate and the technological baccalaureate are organised into 'series' or streams (ES - economic and social studies, L - literary and S - scientific) for the general 'bac', and STG (Management), STI (Industrial), STL (Laboratory), STSS (Health and Social), STAV (Agronomy), TMD (Music and Dance) and Hotel Management for the technological 'bac'.*" France Diplomatie. The French Education System: The higher education system. http://goo.gl/YYZm6

Romanian Results in the Joint International Survey on Information Literacy Skills of Library and Information Science Students

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Library and information science schools in the whole world should adapt, transform and keep track of the technological changes in the informational society. Fortunately these schools always have the opportunity of interacting, developing collaboration relationships with their professors and students.

Interaction with different traditions, organizational cultures, used languages and technological level is possible by conferences, seminars, projects. From these international connections, the basis of an international study concerning research expertise, skills regarding information and information literacy of the different librarian schools students were well established.

In Romania, there were no information science and library school programs from 1965 to 1991. It was a very important step in library development but it was very hard to create generations of professors and to transmit knowledge to the future teaching staff. The first university to create a school of library and information science was the University of Bucharest, and in short time it was developed in several universities such as Cluj, Timisoara, Targoviste and Brasov. Unfortunately today, there are only three of them in Bucharest, Timisoara and Cluj. The interest of students is not very high for this field but the existence of these library schools reflects an increase in the high quality of human resources in libraries.

In this paper we present the attitudes and opinions of students of library and information science using this international survey.

Keywords: *Information literacy, information science students, Romania*

Information Literacy Competencies of LIS Students: The Case of Turkey

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The most salient characteristic of today's societies is continuous change. It is obligatory for any individual in information societies to have lifelong learning skills, in order to keep up with changes and get acquainted with new developments. Self-regulated learning and information literacy are key competencies required for lifelong learning. Today, information literacy competencies are necessary intellectual ingredients of any individual's life. Consequently, information literacy competencies increasingly appear among student outcomes and performance indicators.

There is a large body of literature related to information literacy competencies for different groups, especially students from different levels and disciplines. Project Information Literacy (PIL) is one of the well-known studies conducted on the research and everyday life information-seeking behaviors and information literacy competencies of American undergraduate students (Head & Eisenberg, 2009). There are many other similar studies conducted in different countries around the world. On the other hand, literature reporting on information literacy competencies of Library and Information Science (LIS) students is scarce.

Information literacy competencies are more crucial for LIS students than for students from other disciplines. This is mainly because they need these competencies not only to succeed in their personal lives and perform their professional work effectively, but also to provide IL instruction assistance to others. A multinational research study was conducted to find out about information literacy competencies of LIS students. 19 countries, namely Australia, Bulgaria, Croatia, Finland, France, Hungary, Japan, Lithuania, Malta, the Netherlands, Poland, Portugal, Romania, Russia, Singapore, Switzerland, Turkey, UK, and the USA, were involved in this research. With the permission of its developers, a PIL survey instrument was used. It was adapted to the LIS field and translated into the languages of all the countries involved. Utilization of the same survey instrument will, in the end, allow for easier and more consistent comparison among countries.

In this paper, information literacy competencies of Turkish LIS students will be explored. 501 students from five LIS schools in the country participated in the survey. Findings indicate that only 7.4% of the survey participants are postgraduates, the rest are undergraduates and they are almost evenly distributed among different grade levels (29.5% are first year, 18.4% are second year, 22.2% are third year and 21.6% are final year students). The majority of the students are female (73.7%). Getting started on an assignment and defining the topic are among the most difficult tasks within the research cycle (more than 50% of the students find it difficult). Search engines are the most frequently used tool to find information for course-related assignments (more than 90% of students use search engines almost always or frequently for this purpose). Librarians are the least consulted people for course-related assignments.

This paper will not only report on the information seeking behaviours and information literacy competencies of LIS students in Turkey, but also will explore the differences and similarities between various stages (undergraduate and postgraduate). Findings are expected to highlight the gaps in LIS students' information literacy competencies as well as their needs. That will help improving LIS programmes by addressing these needs.

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Keywords: *LIS education, LIS students, information literacy, Turkey*

National Information Literacy Survey of Primary and Secondary School Students in Singapore - A Pilot Study

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The quest to develop information literacy skills among school students in Singapore started in the late 1990s and has continued to today through various policy initiatives. Recently, the National Library Board (NLB) and Ministry of Education (MOE) in Singapore have collaborated to carry out a National Information Literacy Program for primary and secondary mainstream school students. The program involves developing a curriculum framework that can be implemented in specific school subjects where information literacy (IL) competencies can be nurtured. Surveys were developed at specific levels in the primary and secondary school to identify the students' IL strengths and weaknesses and guide relevant intervention planning and implementation. Information Literacy academics from Nanyang Technological University, Singapore, were involved in formulating the curriculum framework, in reviewing the surveys, and in assessing the findings of the surveys. At this point, the survey instrument has been formulated and a pilot test of the instrument has been administered to more than 70 primary school students and about 20 secondary school students. A preliminary analysis of the findings showed that the primary school students (ages 8 to 11 years old), had a rather weak understanding of information sources and types, and were not sure about how they could locate a book in the library. Meanwhile, for the secondary school students (ages 14 and 15 years old), it was found that when they had to carry out information-literacy related tasks such as identifying potential sources of relevant information, or analyzing retrieved information, they would seek the help of their classmates first, followed by teachers and other friends, then parents, and finally librarians. It was also found that for the secondary school students, they were rather weak in seeking information from sources, with only half of them getting the survey questions for this correct. The results of this pilot study will be used to categorize the survey questions based on their level of difficulty, and in developing a comprehensive weighted scoring system for accurately measuring IL competencies of school students. It is expected that a weighted Information Literacy test can be developed from the results of this pilot survey, which will thereafter be administered as a National Information Literacy Survey to assess the level of IL of primary and secondary school students in Singapore. This paper shares the detailed analyses of the pilot survey of these students, according to the proposed curriculum framework for IL for Singapore schools.

Keywords: *Singapore, primary school students, secondary school students*

Doctoral Papers

Digital Literacy in a Global Context

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There is a wide body of research literature engaged with issues of learning in what is commonly referred to as 'the digital age' or 'the information age.' The impact of digital media for learning and in society more broadly, has been a focus of research for more than two decades but accelerating technological development means that further studies are required. The changes in technology that have enabled and accompanied globalisation have had major implications for schools and indeed for the processes of lifelong learning worldwide. Key shifts and transformations include: changes in the ways that literacy is conceptualised; pedagogical responses to increasing technology and 'information overload;' re-examination of the role of schooling; and increased recognition of the importance of access to technology and opportunities to learn about and with technology, particularly for certain sectors of the population such as the elderly, those of lower socio-economic status, ethnic minorities and women. Two premises underpin this research: firstly, that recent rapid advances in technology and communications have led to fundamental changes in society; and secondly, that the field of education, and pedagogical debate reflects and has needed to adapt to the challenges posed by these tensions.

Recent research into digital and new literacies indicates that the field requires better developed theoretical frameworks in order to cope with the complexity of today's rapidly changing and globalised world. From the introduction of the first printing press, through to the shift from print to screen to interactive computer-driven environments, researchers from many disciplinary backgrounds have asked questions about the nature of literacy in light of technological change. However, what makes the questions different today is the pace and scale of change. At no time has information and communications technology reached so many people and impacted on society so fundamentally in such a short period of time.

This paper considers the relationship between literacy and digital literacy, from historical and theoretical perspectives. The paper begins by presenting an overview of research relating to literacy, with a focus on attempts to connect digital and new literacies to more traditional notions of literacy. It then investigates the tensions and complexities underlying the concept of digital literacy through a survey and analysis of a range of definitions and applications of the term digital literacy, as well as related terms such as Internet literacies, new media literacies, multiliteracies, information literacy, ICT literacies, and computer literacy. This includes tracing the evolution of such terminology over time. The originality of this PhD thesis is its argument that current theories of digital literacy can be enhanced by considering a range of comparative approaches that take a global view of digital literacy, raising new questions and issues and providing new insights. This thesis explores the full 'spectrum' of conceptualisations of digital literacy, asking key research questions such as, is it possible and/or desirable to reach a synthesis between the various theoretical positions on digital literacy?; and, what are the possibilities and limitations for educators and policymakers when digital literacy is considered a 'global phenomenon'?

Keywords: *Digital literacy, information literacy, media literacy*

Malaysian Teacher Education Institute Trainees and Information Literacy Competency

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This case study attempts to discover with certainty the information literacy competencies in the research process acquired by undergraduate trainees of the Malaysian Teacher Education Institute in the northern region of Peninsula Malaysia. In doing so, it is highly important to see that trainee teachers have acquired a comprehensive understanding of information literacy. The 21st century opens a new paradigm to the teacher's education, as young trainees require more sophisticated information literacy (IL) skills in the navigation, evaluation and use of information compared to their predecessors (Breivik & Gee, 2006). Significantly, a teacher's major role in the information age is to facilitate students' learning through diverse opportunities and to help them learn how to use information wisely in their lifetime (Education & Behavioral Science Section [EBSS], 2011). Despite this, recent research has found that future teachers often emerge in teaching without the necessary IL skills and knowledge of the research process. Malaysia's Education Master Plan 2006-2010 emphasizes the Ministry's robust training in preparing these trainees. This training should instill in the trainee teachers the inclination and understanding of their role as drivers of IL in the life of young Malaysian. Therefore, the institute is held responsible for ensuring that they achieve these skills before they turn out as teachers. In doing so, evaluation of these IL competencies is fundamental to the Ministry. In tandem with this change the actual distinction between IL competency behaviour among the trainee teachers has a cohesive effect on how they improve their skills further. The teacher education curriculum in the Ministry's institutes offers preliminary subjects of IL in the first semester after the trainee teachers' enrolment. The curriculum later requires them to do a final project of school based action research during the seventh semester and submit a written report during their eighth and final semester. The trainee teachers are also required to complete a pre-service practical training at local schools during the seventh semester and gather information on their project. The study plans an in-depth analysis of information literacy competency problems and issues faced by trainee teachers doing research. The respondents of this study are full-time final year undergraduate trainee teachers for the Educational Degree Programme doing their school based action research in the states of Kedah, Perlis and Penang. The population is segregated into science and non-science from various content areas of specializations. The study will consist of two phases of data gathering. The first phase uses face to face interviews and document analysis of the purposive sampling to analyse intensively the multifarious phenomena. The second phase uses questionnaires in order to probe generalized findings of the wider study population among all full-time final year trainee teachers in the five northern region campuses. The findings hope to give insights to stakeholders on the way to move forward in terms of needs, process and outcomes, in accordance with the Malaysian National Information Literacy Agenda.

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Keywords: *Information literacy competency, information seeking behaviour, research process model, teacher education*

Doing Online Relearning through Information Skills (DORIS): A Mutual Shaping Perspective for Information Literacy Research and Practice

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This paper is framed within a doctoral research about the integration of social media in a learning experience and the roles that information literacy, digital literacy, and new literacies may play in such integration. A pilot study was conducted and the final empirical study took place on April 2013. The methodological approach used is participatory action research (PAR) and following this approach a research and methodological framework labeled as 'Doing Online Relearning through Information Skills' (DORIS) was developed. This framework comprises a series of learning interventions, activities, and assignments. This paper provides early data analysis focusing on: a) the overall mutual shaping perspective assumed, b) its particular epistemological assumptions and supporting theories, and c) some of the possible contributions such study can offer to information literacy research and practice in the form of information literacy programs. Within this research, learning, literacies, and social media are conceived as elements that mutually shape one another during the study. This is called a mutual shaping perspective, which is opposed to the perspective of 'technological determinism'. It allows gaining a better understanding about how technology might affect the practices of its users and at the same time get a glimpse on how these practices may affect the way technology is used or implemented into teaching/learning contexts. Moreover, the use of social media can influence the way a learning experience is planned and the characteristics of a learning experience may change the way the educator plans the experience or uses this technology. The main epistemological assumptions driving this study are that knowledge may be created through socialization and it can be discovered, as people possess tacit knowledge within. Moreover, following PAR, teachers and practitioners are capable of generating personal theories by systematically studying their practice. Furthermore, the main theories supporting this research are: constructivist, blended, and problem based learning; the three dimensions of learning (cognitive, social, and emotional) and the theory of affinity spaces. These theories provide useful analytical lenses for analyzing and discussing the data gathered in this study. In particular, the theory of affinity spaces offers a powerful way of thinking about teaching and learning processes mediated by different technologies. The heuristics that will focus the data collection and analysis are on the function of content, and on the function of participants' interactions with the content and with one another. Regarding the possible contributions for information literacy research and practice that may be derived from this research and that we highlight in this article are: the grounding on participatory action research, its theories and epistemologies, its methods, the mutual shaping perspective, and the expected results. We believe that DORIS is a powerful framework that can be used to organize learning interventions through the structure of information literacy skills. Researchers, librarians, or educators may adapt it for teaching, learning, and researching about and with social media or for acting within technologically mediated learning environments. It could be adapted for facilitating information literacy programs or other topics from an information skills framework.

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Keywords: *Social media, higher education, teaching, learning, participatory action research, information literacy*

Engineering Students' Information Literacy Perceptions and Needs in the UK and Greece: A Literature Review

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Purpose

The presenter will report on the initial stage of a doctoral study, namely the literature review. The study aims to investigate the IL needs and perspectives of engineering students through two longitudinal case studies, carried out in universities in the UK and Greece. The purpose of the literature review is to present the current state of the art in IL in this population and accordingly inform research and educational strategies in this area. The presenter will start by summarising her research aims, objectives and methods, and devote the majority of the time to outlining her approach and findings in reviewing the literature.

Design/Methodology/Approach

Research articles, conference proceedings, and doctoral theses published from 2000 to 2012 were reviewed, using Web of Science, Science Direct, Emerald, Lisa, Lista, Google Scholar, Ethos and Proquest with a range of search strategies. The works focusing on the thematic topic of the study were coded in a taxonomy. Relevant journal alerts for current awareness and RSS feeds for newly published papers were created. The bibliographies of papers were reviewed. Definitions of IL and current IL models were discovered. The taxonomy as a coding method could be used for future literature reviews in this field.

Findings

All papers were selected for relevance to IL, Engineering, Higher education and student placement. Four themes were identified: background theoretical works, practical literature, user studies and IL students' needs and perceptions. 27 papers identified are smaller scale practical studies contributing by offering a snapshot of teaching approaches and what stakeholders views. Although there is evidence in the literature of librarians' and academics' perceptions of IL only 13 relevant papers investigating students' perceptions were identified. A need for further research was recognised especially for IL and engineering students in Greece. Key research questions were identified including the need for further research concerning engineering students' needs and Greece and led to carrying out a comparative case study in two Universities in the UK and in Greece.

Research Limitations/Implications

This study is a comprehensive review focusing in works from 1999 to 2012. A need to examine learning theories and literacies not covered in the review was identified. Further research could be done following engineers IL needs and perceptions when in employment.

Originality/Value

IL is high on the UNESCO agenda for its connection to knowledge societies. Also graduate skills as IL are included in the strategies of Universities for employability and life development. Both these factors make this research relevant to the employability of engineers. There is evidence from the user education literature that students learn better when content is linked to context so the need to look into engineering students is justified. This research clarifies some characteristics of literature, e.g. authorship, leading to the realisation that the majority is written by librarians for librarians. Only 3 engineering academics' papers were identified. The knowledge of how engineers value IL and how they engage with information will help shape IL frameworks. The novel contribution of this study will be the engineering student perspective and the Greek aspect.

Keywords: *Information literacy, engineering students, higher education, information literacy needs, information literacy perceptions, bibliography, United Kingdom, Greece*

Exploring Information Literacy (IL) Practices in Primary Schools: A Case of Pakistan

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UNESCO has identified the value of IL in educational systems (Wilson et al., 2011). IL as a component in education builds information, ICT and library skills of children. At all grade levels IL plays a crucial role in developing a child's information seeking behavior. IFLA has emphasized the development of information competencies throughout an individual's life, especially during their formal educational years (Lau, 2006). Independent information seeking, as an important area of learning, must be started in early age. Therefore, efforts have been made internationally to develop IL integrated curriculum and activities in schools (Streatfield et al., 2011). International associations have also developed IL K-12 (school-level) standards, e.g. AASL's Standards for the 21st-century learner.

Unfortunately, in Pakistan no research of IL at the school level has been reported, although there is some research on higher level (Kousar, 2011). Kousar (2011) reports on the importance of IL and high IL skills perceived by faculty at the postgraduate level. Though acknowledgement of the importance of IL exists and there are efforts by some academic librarians to formally or informally offer library orientation/user education programs in Pakistani universities, there is a complete dearth of local studies in IL at the school level (Bhatti, n.d.; Bhatti, 2010). There is a need for Pakistani researchers to pay attention to this research area. Considering the above scenario, this doctoral forum paper is based upon the researcher's ongoing PhD study, which explores the IL practices in primary schools of Lahore, Pakistan. Feedback and suggestions from peers and subject experts will help make this work a valuable contribution in the relevant field and in the local literature. Because this work is in its initial phase of investigation, practical ideas may direct the study in the right direction. In this paper the researcher will look into the rationale and objectives of the work. She will also present the research approach, design, methods and their justification for the study to project its future. Four qualitative research approaches were considered for the study: Phenomenology, Phenomenography, Grounded theory and Case study. Case study allows the researcher to gain in-depth understanding of the phenomenon within context and suitable to achieve study objectives. Therefore, it was decided that an exploratory multiple case study analysis may help the researcher to study the phenomenon best. The researcher will also present a review of literature and proposed analysis of the findings.

In particular, this paper will present the conceptual framework of the proposed study. The nature of the research will be exploratory, to highlight the different aspects of the phenomenon in depth. Generally this project will examine the IL practices in the country, its different aspects, issues and challenges at school level. It will help in promoting IL awareness in Pakistan. More specifically, findings will help the concerned to develop basic structure of IL in schools. The study will also be a landmark and try to fill the research gap in the relevant field.

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***Keywords**: Information literacy, schools, Pakistan*

What They Didn't Have: Backwards Design toward a Forward Agenda

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Objective

Pragmatic research epistemology calls for a purpose, a problem to be solved. As a secondary school librarian and doctoral student, this writer's observations of entering 9th grade, urban students' poor standardized test scores and their struggling library research dispositions inspired exploration of the **"**potential impacts and outcomes of not engaging in the information-transformational-formational challenge of learning through a school library (Todd & Kuhlthau, 2005, pp. 86-87). The purpose of this forum and associated paper is to examine whether or not the mixed methods procedures, developed and administered as pilot studies are valid and reliable. The goal of the research is to advance student empowerment through earlier and equitable access to school library professionals and resources.

Approach

Doctoral coursework integrated the ponderings about student access to educational resources with theoretical concepts such as of information poverty (Chatman, 1996, p. 199). Statewide school library impact studies (LRS, 2011), which correlate positive standardized test achievement with access to active school library programs (ALSP), prompted testing the opposite. A pilot survey instrument was created and administered to 9th grade students with the notion that this post-positive, quantitative methodology might be dissertation-worthy. However, upon exploring theories of *information worlds* (IW) (Jaeger & Burnett, 2010) and *everyday information practices* (Savolainen, 2007) quantitative data only partially described disadvantaged learners. Students' under-resourced educational contexts and weak information literacy skills triggered the inclusion of observations and interviews. The concept of *informationally underserved* (IU) and its four-quadrant model emerged.

Questions

1) Is this mixed methods research valid? How well does it triangulate the "philosophies of science" or quantitative methods with the "philosophies of interpretation, as articulated in communicative, pragmatic and hermeneutic thought" (Benoit, 2002, p. 452) or qualitative methods? How well does the model depict the methods? 2) Does the exploration of educational deficiencies through both methods provide a "pragmatic test of usefulness or workability" (Crowley, 2005, p. 43). How well does this pragmatic approach "yield different perspective(s)" and combine "interpretive -and communicative- oriented" and logico-analtyic methods (Benoit, 2002, p, 451)? 3) Is the following reliable? *Hypothesis:* H_0: μ = IU H_a : $\mu \geq$ IU - - The null hypothesis is that the response variable, *IU* standardized test scores and grades, will remain the same as students with ALSP. μ in this case is the population mean of students scoring proficient or better on standardized tests. The alternative hypothesis is that, without school libraries, student academic performance will be less than their counterparts. 4) Can standardized tests be deemed "appropriate interlanguages as mechanisms for working out the cross-cultural understandings necessary to define and share knowledge across context" Crowley, 2005, p. 79)? Is the concept of the *informationally underserved* a pragmatic mechanism furthering access to ALSPs and information literacy resources?

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Keywords: *Mixed-methods, pragmatic knowledge claims, information worlds, everyday information practices*

Best Practices

Game Based Learning for Information Literacy Instruction

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Game based learning is receiving increased attention, including from the New Media Consortium's 2012 Horizon Report (Johnson, Adams & Cummins, 2012), who detail it as one of their important trends in Higher Education, with a time to adoption of two to three years. Gamification is also creeping into many areas of life outside education, paving the way for its acceptance within libraries and education. For Health and Fitness, devices such as the Fitbit and Jawbone Up allow exercise-based metrics to be constantly measured, targets set, badges won and comparisons made with others via online leaderboards. Smartphones allow us to compete with friends by "checking in" to locations with apps such as Foursquare. There are even openly available badge networks for learning and education, such as the Mozilla foundation's Open Badges.

Game based learning is becoming easier to implement and to be accepted by our users as increasing numbers of people identify as gamers, including those who play casual games on smartphones and tablets. Games are no longer the near exclusive territory of teenage boys, with the average age of a gamer now being 37 (Warman, 2012). Though many recent developments have been made in the field of digital games and gamification, non-digital games are still just as relevant and have the potential to be more readily accepted thanks to the increase in digital gaming.

Games are ideally suited to the development of skills, often requiring players to problem-solve, plan, and critically consider strategies to win the game. These are core information literacy skills underlining their suitability for use in the development of information literacy skills we try to help our library users develop. Game based learning can be used in several aspects of information literacy instruction. These include introducing elements of play to encourage reflection on students' learning; using digital and tabletop games to teach information literacy topics within more traditional information literacy instruction (such as the game SEEK!); and more in depth digital games that students interact with outside library teaching sessions.

This session will cover some key ideas of game based learning and gamification and describe how these ideas may be used in information literacy instruction. It will include a range of examples, including those the presenter has implemented. These include an online library gamification project, Lemontree (http://library.hud.ac.uk/lemontree); and a range of non-digital information literacy games including SEEK!, a card game for improving search skills (http://eprints.hud.ac.uk/15377/). It will draw on experiences from workshops the presenter has facilitated, where librarians design and prototype their own information literacy games.

The session attendees will learn how they may use games in information literacy instruction in their own institution and how they can create games either by themselves or in partnership with others.

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Keywords: *Information literacy, game based learning, active learning*

The Lost Book: Teaching Transliteracies through Transmedia Storytelling

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Transliteracy, the ability to "read, write and interact across a range of platforms, tools and media from signing and orality through handwriting, print, TV, radio and film, to digital social network (Thomas et al, 2007)," is becoming increasingly crucial for learners in the 21st century as media formats expand and change, as will learning across these formats.

Transmedia storytelling has been utilized by marketers for the last decade to engage potential customers. Also known as Alternate Reality Games (ARGs), transmedia storytelling leads players through physical and digital spaces in order to interact with other players within the game environment and advance the story. Jane McGonigal (2004) defines these games as "interactive drama[s] played out online and in real-world spaces, taking place over several weeks or months, in which dozens, hundreds, or thousands of players come together online, form collaborative social networks, and work together to solve a mystery or problem (p. 9)." Because transmedia storytelling by its very nature involves so many media formats, participating in them is uniquely beneficial to transliteracy development.

Institutes of higher learning are beginning to realize the power of gaming as a pedagogical tool. The Horizon Report states "Game-based learning reflects a number of important skills higher education institutions strive for their students to acquire: collaboration, problem solving, communication, critical thinking, and digital literacy. What makes educational gaming appealing today is the plethora of genres and applications associated with it (Johnson, Adams & Cummins, 2012, p. 19)."

In an effort to capitalize on the use of games to teach new literacies, the authors developed an ARG centered in the university library, with a whimsical narrative involving a brother and sister who enjoy puzzles and use them to try and find a lost book. Via multiple entry points or "rabbit holes," curious campus staff and students engaged with library staff and service points in order to follow the two siblings on their quest for the book. Over the course of five days players discovered clues and read stories leading them through various parts of the library to discover a commonplace book where they added to the story.

Multiple communication and learning platforms included such diverse elements as sidewalk chalking, social media, a phone drop, classified ads, the physical space of the library, and LibGuides. ARGs and transmedia storytelling will be introduced, along with the pedagogical benefits of games in higher education. Particular emphasis will be placed on the logistics of building and running an ARG in an academic environment, results and feedback from the players, and next steps following an initial successful run.

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Keywords: *Transliteracy, gaming, libraries*

LibQuest: A Problem Based Learning Approach to Information Literacy

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Problem Based Learning (PBL) appears to be the way forward.

Gen Z students seem to prefer discovery and a self-paced learning environment (often using a variety of gadgets) rather than a more structured instruction module in a classroom setting. Kenney (2008) found that PBL provides the theoretical framework for a learner centered, active instructional experience that relies on collaboration, critical thinking and hands-on interaction with resources. Pelikan (2004) developed and delivered course-related library instruction using PBL over a period of two years at the Penn State School of Information Sciences and Technology and concluded that PBL is worth pursuing as an approach to library instruction. Kim (2012) found that game dynamics can raise library users' level of engagement with library resources, programs and services. They can help library users solve problems more effectively and quickly by making the process fun. Furthering this idea, research librarians at the Li Ka Shing library at Singapore Management University designed an information literacy (IL) programme in the form of a scavenger hunt. The programme enabled the students to experience the thrill and excitement they commonly associate with a gaming environment. The hunt led them to myriad twists and turns – and each of these contained within them embedded IL learning outcomes – the same outcomes that have guided our previous IL programmes that utilized the more traditional hands-on classroom-based learning model.

Presenting LibQuest

In our presentation, we will provide the details of our scavenger hunt model which involves working in pairs, is friendly to gadget use, and combines the learning outcomes of both a traditional IL programme as well as a library tour in one engaging, exciting, fun filled activity. The process of creating LibQuest began with identifying 6 learning outcomes that needed to be met. The learning outcomes were intended to introduce students to the library, and included elements such as locating different library materials, becoming acquainted with the library's communication channels (including social media), being able to identify subject specialist research librarians, and getting to know the physical space of the Library. LibQuest also necessitated students approaching library staff for help – an important component that sets the tone of the relationship library staff hopes to nurture with students.

We will also present the results of a survey conducted with the participants, which shows overwhelming appreciation and support for LibQuest. Finally, we will discuss enhancements to the programme.

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Keywords*: Problem-based learning, information literacy, academic libraries*

Information Literacy and the Western Balkans: A Tempus Project

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This paper will depict a unique, pioneering European Union funded project which aims to develop information literacy for lifelong learning in the Western Balkans, specifically, in the countries of Albania, Bosnia & Herzegovina, Kosovo, under UNSC Resolution 1244/99 and Montenegro.

Tempus is the European Union's programme which supports the modernisation of higher education in the Partner Countries of Eastern Europe, Central Asia, the Western Balkans and the Mediterranean region, mainly through university cooperation projects.

Information literacy involves having the ability to recognize when information is needed and having the ability to locate, evaluate and use effectively the information needed (Association of College and Research Libraries, 2000). Information literacy "is the keystone of lifelong learning" (Byerly & Brodie, 1999 cited in Lau, 2006, p.7) and is "absolutely critical literacy to all sectors of society" (Kajberg & Lørring, 2005, p.67).

The specific objectives of the project are development of IL programs for lifelong learning and their use in curricula as appropriate; development of innovative online IL modules for lifelong learning; harmonisation of the IL programs with those currently active in Western Balkan countries. An important objective, also, is strengthening the capacities of Western Balkan higher education institutions for strategic planning and implementation of IL programs, in order to instill transferable skills for a competitive, dynamic, knowledge-based economy, as well as to develop IL policy, guidelines, goals, and mission. The main outcomes of the project are guidelines for planning IL programs, harmonised contents for the teaching of IL, training of IL practitioners, development of innovative online IL modules, implementation of IL programs, dissemination and sustainability of IL programs.

All projects have obstacles thrown in their way from time to time and this project is no different. This three year project which commenced in October 2011 has faced and overcome some obstacles such as a lack of awareness of IL in Western Balkan institutions, differences in harmonizing financial project management systems, as well the highly decentralised structure of some Western Balkan institutions. This is due to the fact that every Faculty is an individual legal entity, hence making IL implementation at the University level more challenging.

The project has had some important achievements to date, such as the publication in each Western Balkan institution of *Guidelines for planning IL programs in Western Balkan countries*, and publication of *Guidelines for IL program harmonized contents.* The project has also published an Information Literacy syllabus and curricula in each Western Balkan institution participating in the project. Other achievements include the publication of *Guidelines for training of IL teachers/practitioners: methodology for teaching information literacy*. Future activities in the project include the development of innovative online modules, and the full rollout and implementation of the IL programs. This will involve coordination, timetabling and physical execution of the program, as well as the creation of a Western Balkan Network for Information Literacy (WBIL) for the future dissemination, sustainability and exploitation of project results across the Region.

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Keywords: *Information literacy, lifelong learning, Western Balkans*

A Puzzle to Solve: How Successful is Teaching Information Literacy Instruction in Distance Learning?

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In the past ten years distance learning courses in higher education have increased significantly. Many courses that integrated library instruction and information literacy (IL) into their curriculum went online. Academic librarians faced the challenge of embedding library instruction and information literacy into the online courses. With the help of emerging technologies, many US academic librarians have successfully embedded information literacy instruction into distance learning courses. However, no one knows if the online library instruction is as effective as the face to face instruction, and what is the best way of teaching IL to maximize success in the online environment. The study reported in this presentation aims to evaluate the learning outcome of library instruction in the distance learning courses and compare it to that of the traditional face to face IL sessions.

In the fall of 2012 the author worked with a professor in the Department of Computer Information Systems and Supply Chains, Rider University, to assess the learning outcome of information literacy instruction in the online environment and compare the results to those in the face to face classroom. Two identical classes (Computer Information Systems-340: E-Commerce) are used for this purpose; one is a traditional class in a classroom, and the other is an online course. A pre-test was given to both traditional and online classes to determine the baseline knowledge of the students' information literacy. To motivate students to take the survey, a $50 Amazon gift certificate was awarded to one of the students who participated in the study. In the middle of the semester the author taught library instruction in the traditional class and provided the captured instruction with the same content and recorded voice as the online class. Within a week of the IL instruction, a post-test was given to the students in both classes for comparison. The pre-test and post-test comprised the same questions, but in different order. In the spring of 2013, the same process will be repeated for two identical classes, Computer Information Systems-270: Network/Communications. One is taught in the traditional classroom and one is online.

Both the author and the professor are committed to this research. This will be an on-going project until data is adequate to reach a conclusion. As this research project continued, the author gained experience and adjusted strategies. As the pre-test and post-test are not a requirement for the classes, the response rate may pose a problem. Hopefully this study will contribute to the body of knowledge about embedded IL in distance learning. This presentation will discuss the process, the pitfalls, and findings.

Keywords: *Information literacy, library instruction, online courses, distance learning, assessment, learning outcome*

Creating Online Tutorials: A Way to Embed Research Instruction into Distance Learning and Traditional Classes

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Objective

This presentation describes how librarians overcame the challenge of incorporating library instruction into distance learning classes. Librarians learned new skills: software technologies, storyboard creation, project management techniques. Collaboration with faculty was essential for creating course-integrated library instruction with these tutorials. As a result, these tutorials are now used by faculty in traditionally taught classes as well as online courses.

Methods

Captivate software, produced by Adobe®, and recording equipment involving headphones and speakers have been used to create interactive tutorials, requiring librarians to learn new skills in using this technology. Storyboards using screen shots with inserted text and scripts were made to help trained library student workers to make the videos. The audio portions were recorded by either the librarian or professor. There was constant reviewing and revising by the librarians and faculty members before the final products were installed on the library website and URLs embedded into the course management system for students. Feedback surveys have been included in the tutorials for student reactions, plus quizzes were given in one instance to determine students' research skills after viewing the tutorials for assessment purposes.

Results

The professor using the tutorial for her online Psychology course has been pleased with the results of students' research papers and uses this tool for both her online and her traditionally taught classes. Students are no longer frustrated because they are able to find the appropriate resources for their assignment, and have responded positively to the tutorials in the feedback surveys.

Student feedback resulted in revisions and additional modules for the organic chemistry tutorial. The assignment was modified to ensure the usage of the chemistry database, SciFinder, and out of class workshops in the library instituted based on student recommendations.

Conclusions

Based on the reactions of the students and teaching faculty, these tutorials have been valuable because students receive in-depth help with their coursework at their own pace and time of need. Professors are satisfied because class time is saved by fewer questions on assignments and library instruction occurs outside of class time. Collaboration between librarians and professors requires good political skills, and librarians need time and patience in making numerous revisions to tutorials.

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Keywords: *Online tutorials, research instruction, distance learning, collaboration, information literacy*

"I Will Not be a Tourist in the Land of Images": Adding the Visual to Information Literacy Instruction

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Information technology affords new media in which visual images are increasingly bearers of information. Traditionally, students are taught to deal critically with the written word, although their world is increasingly populated by information in visual form (Harris, 2010). According to *The Economist*, only 5% of information is structured as words or numbers; the rest is images, phone calls, etc. (Data, Data Everywhere, 2010). Emphasizing print literacy misses the quantitative shift in the amount of information work and the communication work done by visual content; such information might pass unchallenged by an untrained and uncritical audience. Professional bodies recognize the need for training in visual literacy. The International Federation of Library Associations & Institutions (IFLA) has identified media and information literacy (MIL) as crucial for global digital citizenship (2012). This echoes Shapiro & Hughes' (1996) description of information literacy (IL) as a contemporary liberal art foundational for participatory citizenship. IFLA's conceptualization of IL is informed by, and extends, the Association of College & Research Libraries' (ACRL) "Information Literacy Competency Standards for Higher Education" (2000). In recognition of the importance of visual information, ACRL has promulgated "Visual Literacy Competency Standards for Higher Education" (ACRL, 2011). However, the creation of separate standards for IL and visual literacy (VL) suggests a disconnect between these constructs, despite the fact that words and images often function together as information carriers. IL standards seem to address verbal literacy, while visual or media literacy addresses the information associated with visual media. Given the increase in visual content carriers, a logical step for IL instruction would be the integration of VL and IL into a seamless literacy program (Harris, 2010). Mackey & Jacobson's (2011) notion of IL as a metaliteracy links both verbal and visual literacy, since principles of IL are an extension of many critical-thinking criteria already recognized as essential in Western education. The presenters will suggest ways to combine VL and IL into a rhetorically based, critical-thinking approach to information. This approach can enrich IL and critical-thinking instruction, as learners are taught to apply rigorous criteria to texts regardless of their media form.

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Keywords: *Visual literacy, information literacy, metaliteracy, information literacy instruction, visual literacy instruction, library instruction, rhetoric*

Library Instruction's Impact on Students' Search Behaviour

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The aim of this study was to investigate how the students at Østfold University College describe their searching for information and how library instruction influences their search behavior. In order to do so, we compared the information searching skills of the students who had attended the IL instruction to those who had not.

We interviewed and observed 19 students after two hours' IL instruction given by the library staff. The students were randomly selected among first year students in Nursing and Teacher Education studies. Half of the students had attended the classes, which were not compulsory, and the other half had chosen not to be present. The librarians and the faculty staff collaborate closely, and the students were given an assignment at the time when our project started. The theme of the interviews was how they would solve the information retrieval. The semi-structured interviews lasted for about 20 minutes. During the interviews, the students' skills in information searching, critical use of sources and reference technique were examined. Likewise, we observed the same students while they were searching for information in the library, limited to an additional half hour.

In our IL instruction, the students were taught how to search for information and literature in a selection of databases, including the library catalogue and specific reference and full-text databases in their field of study. They were guided in how to be critical in their use of sources, and were given a lecture on referencing. Our teaching was based on a combination of traditional blackboard instruction and computer exercises.

The results show that there were only slight differences in the knowledge and conduct of searching between those who had attended the IL instruction, and those who had not. In spite of two hours' instruction, only a couple of the students mentioned the possibility of using the library's databases. Not many students talked about the library catalogue in the interviews, but a few more used the library catalogue during the observation sessions. Many used Google as their starting point for searching for information, while some went directly to specific websites related to their field of study. The students explained their use of Google as the quickest and easiest way of finding information. Some of them revealed that they found the library's databases complex and difficult to use. We got the impression that these students represent the Google generation, and learned a lot from listening to their experiences, thoughts and study approaches.

The research literature mainly reflects different sorts of tests to find what the students actually learn in IL classes, but not how they behave when searching for information. As a consequence of the results of this study, it is necessary for our library to develop and make changes to our teaching practice in IL. We plan to interview the same students in a follow-up study in the fall of their third year.

Keywords: *Library instruction, information literacy, students*

The Writing Librarian: The First Year

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Many researchers have investigated the aspects of information literacy that relate to consumption: finding information, evaluating it, and incorporating it into one's academic work. Less frequently explored is the ability to *produce* information—a paper, a poem, a grassroots magazine—that can reach beyond the classroom and impact the culture at large. It is in this vein that the UCLA College Library created the post of "Writing Librarian" to foster a culture of writing among undergraduate library users.

"The Writing Librarian: The First Year" will present brief overviews of three major projects that I have spearheaded or collaborated on during my first year as UCLA's Writing Librarian. The *InqDrop* is a space for student Peer Learning Facilitators (PLFs) to tutor other students in writing and research. The InqDrop also provides space for UCLA's student creative writing organization, the Writer's Den, to hold workshops and events such as "write-ins." The *Zine Collection* promotes student creativity and self-publication by showcasing zines, or homemade independent publications. Of particular interest are zines authored by UCLA students and other local writers. Ross, McKechnie, and Rothbauer (2006, p. 124) include zine-making as one of the ways in which young adults "locate and create meaning about who they are [and] what is going on in their lives;" similarly, "zines offer readers an [arguably] unequaled forum for participation" in social discourse (Bartel, 2004, p. 34). To these ends, the Zine Collection aims to encourage students to interrogate and contribute to the information landscape, rather than simply consume from it. Finally, the *Recent Fiction Collection* (RFC), consisting of novels and short story collections published within the previous three years, encourages reading for pleasure—an activity that helps students become better writers (McQuillan, 2001, as cited in Gallagher, 2009, p. 74) and "put isolated information into context and develop new insights about information gathered from other sources" (California School Library Association, 1997, p. 61). A "Student Picks" program is currently being developed, allowing students to review titles they enjoy and practice writing in a fun, creative atmosphere.

This session will include challenges each project presented, ideas that worked and ideas that didn't, and overall lessons learned. Attendees will be given simple strategies and tools for starting similar initiatives at their home institutions.

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***Keywords**: Writing, creative writing, pleasure reading, zines, peer tutoring, information literacy*

Tools for Evaluating IL Teaching at Grassroots Level

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The purpose of this paper is to share the evaluation methods for information literacy (IL) teaching in Laurea University of Applied Sciences Library in Finland. The paper describes how data is collected and used for evaluating and developing IL teaching. The library has created a systematic method to assess the quality of IL teaching by gathering both quantitative as well as qualitative data. Similar kinds of IL teaching services are provided in all of the seven unit libraries in Laurea.

Laurea unit libraries share a data collection sheet with information on IL teaching such as date, groups, duration, and topics. Unit libraries are compared and analyzed in a yearly summary. Since 2005 the report has included librarians' experiences on teaching over the past year. The quantitative and qualitative data is shared and discussed collectively with library staff in order to find trends and share best practices. For example, a unit library doubled unexpectedly the amount of individual IL consulting sessions in 2010. It was discovered that the thesis supervisors in Laurea had advertised the possibility of the library's IL consulting. As a result, the other unit libraries also began to promote the service to thesis supervisors, which increased the overall IL consultation attendance.

Self-evaluation of the teaching practices by librarians is considered important. For example, when ratings of an IL course for beginners were constantly lower among ICT-students than other groups, the teaching method was changed for them. Ideas for developing lessons were gathered from the library's feedback form filled at the end of the lesson and thus implemented to practice.

Librarians also utilize data gathered by lecturers when students evaluate courses. A feedback form, which is filled in by students after a course, includes a statement: I have learnt to search for and critically evaluate information found during the course. The results can show impact when corresponding courses with and without IL teaching are compared. For example, courses for tourism students with integrated IL teaching evaluations averaged 4.5 on a scale of 1-5 (highest) as opposed to those without IL teaching which averaged 3.5.

IL practices are also measured by a specific survey every other year conducted by the National Library of Finland. For example, in Laurea Library the statement 'IL teaching has developed my skills', was evaluated by a scale of 1-5 (highest) resulting in 3.3 in 2004 and 4.0 in 2012. The improved result shows that our way of developing IL teaching as part of substance teaching, as well as planning and co-teaching with lecturers has an impact on students' competences.

In conclusion, systematically gathered data is a resource, which gives an insight to changes in the library's IL teaching over a span of time. Results are presented in administration as an indication of the quality of our work. On the individual level the data motivates us to develop IL teaching to better meet the needs of students. A crucial element in developing IL teaching is sharing ideas and data among the library staff and with lecturers in evaluation discussions. Also, the possibility to choose tools according to different situations is important.

Keywords: *IL teaching, evaluation, tools*

Information and Research Competencies Program at the University of Puerto Rico: Architecture Library's Experience

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The Santiago Iglesias, hijo Library was founded in 1966 as part of the Architecture School of the University of Puerto Rico. It is Puerto Rico's largest and oldest library that specializes in architecture. This case study investigation has two main objectives. The first is to present the findings of the Information and Research Competencies Program through the experiences attained throughout the last three years. The second objective is to discuss how the implementation of such a program has provoked a transformation in librarianship practices due to their increased participation in the teaching and research process, as well as in the student learning assessment.

The Information and Research Competencies Program has been designed according to the particularities of the clientele of most architecture schools. In order to achieve greater receptiveness from the faculty, our proposed strategy allows us sufficient flexibility to be able to adapt our work to the School's particularities. This flexibility is based on two models: the "synchronous model" that is either independent or shared; and the "coordinated asynchronous model" based on an open code content management system that presently consists of five custom-designed instructional modules.

The results of this experience show that the participating students value positively the contents imparted by the librarians for their learning process. We have also observed that a greater number of students have been benefitting from our initiatives. In addition, we have observed increased interaction with members of the faculty and participation in academic committees. This work has become an asset that is improving the positive perception of students and faculty members of the essential importance of the work that the librarians perform in a teaching-learning process and environment. The challenge is to continue to extend our reach and increase the number of faculty members who participate consistently and actively in the integration of information and research competencies into their courses.

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Keywords: *Architecture library, information literacy, professional role, University of Puerto Rico, School of Architecture*

National College Student Information Literacy Competition at Wuhan University, China

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With a view to enhance student awareness of the power of information, and the critical importance of strengthening student information literacy competency so as to enable them to better cope with intensive global competition in the digital age, the Information Literacy Association (ILA) of Wuhan University, China, has been organizing national college student information literacy competitions.

The ILA has, with the support of the School of Information Management (SIM) of Wuhan University, and the sponsorship of Baidu Company, organized the "Information Searching Competitions" for six consecutive years, which has attracted thousands of university students to participate. Starting this year, ILA will be expanding the Competition, targeting establishment of an IL assessment system to evaluate China's university students' competency from this standpoint. More importantly, with the endorsement and support of UNESCO's and Information for All Program (IFAP) in China through a partnership of the Institute of Scientific and Technical Information of China (ISTIC), this goal will be greatly promoted.

Universities have been playing key roles in information literacy education. Especially in China, the development of IL in higher education has become critical and is facing great challenges due to the lack of both IL education in K-12 education and IL standards, and due to the overall unbalanced development of education facilities and services in different regions of the country. IL practice at Wuhan University will help provide suggestions to facilitate standardized assessment of IL skills/competency and to develop practical and feasible programs of IL in this country.

The possible ways to make the IL events at Wuhan University more mutually reinforcing and interdependent will also be discussed and explored.

Keywords: *Information literacy, college students, practices, China*

EMPATIC: Empowering Autonomous Learning through Information Competencies

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The EMPATIC project focuses on promoting the effective exploitation of the results of the European Commission's Lifelong Learning Programme (LLP) and also previous related programmes (at sectoral, regional, national and European levels) in the area of Information Literacy.

Information Literacy is now recognised as an essential skill which underpins and transforms people's ability to be creative, to work effectively and to be entrepreneurial, especially since the internet has led to an information explosion. Social networking, Web 2.0 and Second Life technologies have additionally placed a premium on the ability to access, select, organise and communicate information effectively.

The raison d'être of EMPATIC was to encourage the best use of results, innovative processes and the exchange of good practices in the field covered by the LLP. In practical terms this was accomplished through a team of knowledgeable and experienced partners representing four sectors: Schools, Higher Education, Vocational Education & Training and Adult Education & Lifelong Learning. Major results included a state of the art report, Current State and Best Practices in Information Literacy, a strategic review of Information Literacy, identification of illustrative best practice cases and formulation of recommendations to policy makers.

The outcomes from EMPATIC show that much more emphasis should be placed on recognising information literacy as a transversal skill and that a much wider range of stakeholders needs to be engaged. The integration of the modern 'literacies' is required, and work towards developing standards and tailoring/embedding IL in specific education sectors, etc., needs to begin. ECIL provides an important opportunity to further explore these areas and to outline a best way forward through collaboration with a large number of additional partners.

This presentation will focus on the initiation of the project and the outcomes, rather than presenting already known knowledge about Information Literacy.

Keywords: *EMPATIC, information competencies, transversal skills, good practices*

University-wide Elective Information Literacy E-course for Doctoral Students: Results of Analyses

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At the University of Tartu Library, subject librarians have offered a web-based credit-bearing free elective information literacy course for bachelor and master students since 2007. When a special module of all-university elective courses for developing key competencies was added to the PhD curricula, the e-course 'Introduction to Information Research' was integrated into it. During the course, the students complete practical search assignments in their own research subject, which helps them to maintain motivation during the 8-week course.

Noteworthy is the fact that the credit course is compiled and taught by subject librarians, each of whom tutors the students in their own field. Due to its learner-centred approach, the course suits doctoral students of different specialities and information search experience. Doctoral students need advanced information literacy skills for completing the dissertation. Acquiring these skills is supported by tutor facilitated active learning, formative assessment and reflection on learning.

The final assignment of the course was a reflection where the students analysed their learning process and successes and failures, but could also present their own opinions about the course. To investigate the suitability of the approach applied, the feedback and reflections from course participants of three courses from 2009-2011 have been analysed. The software Atlas.ti was used to code these texts, and the method of qualitative content analysis applied to analyse and interpret the data. The total number of doctoral students who passed the course during these years was 226, and the majority of them gave feedback about the course.

In addition, a focus group analysis with the course tutors was carried out in order to hear their opinions on the course and how they assess, based on the activities and progress of the students, the relevance of the information literacy course. In the focus group, 7 tutors participated (the authors of this paper were excluded from the focus group in order to avoid a possible conflict of roles). To analyse the focus group results, cross-case analysis was applied.

In this paper, the results of both analyses are introduced. The students appreciate the knowledge they gained; the course helped them in writing their theses and the contribution of the tutors was much praised. The tutors found such a course with individual feedback time-consuming, but it helped them develop professional skills. It also offered emotional satisfaction to be able to help doctoral students.

Some problems were also revealed that will need further attention. In this paper, the problems related to learning process will be discussed. All in all, the results of the analysis allow us to conclude that the course model is suitable for teaching information literacy to doctoral students.

The teaching approach analysed in this paper could be useful for academic libraries that plan to teach information literacy to doctoral students.

Keywords: *Information literacy, teaching library, teaching methods, e-learning, PhD students*

“From Snoring to Scoring”: Creating a Motivating Classroom Experience in Practice

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This presentation aims to give practical guidelines for creating a motivating classroom experience. The framework presented is particularly suited for teaching information literacy skills in higher education in a small-scale direct instruction setting, as will be illustrated by a case example.

Information literacy training is not something students naturally get excited about for different reasons. This in turn can hinder their ability to learn necessary skills as well as the fact that a ‘difficult crowd’ can present a challenge for library staff to teach effectively. A focus on creating a motivating classroom experience for students can have several benefits for library instruction.

The necessary steps for creating a motivating learning experience can be divided into three parts. First, library training sessions should be part of a Planned Programme. Students must be aware that they are taking part in a mandatory multi-session instruction programme where they are given specific training in skills which they need for their assignments. These periodic, for instance, yearly, sessions get more challenging over time, in concurrence with their higher level assignments. This programme is designed to motivate students by offering the students highly relevant instruction.

The second part is training the instructor. Instructors need professional teaching skills besides their information expertise, in order to be able to engage the students in a dynamic, flexible way so they get the most out their instruction programme (Brewerton, 2012). Training enables instructors to be ambitious in their approach to education and use an array of teaching techniques.

The third part is where it all comes together: the classroom setting. The instructor uses the programme and his or her training to create a serious, challenging, fun, and safe learning environment. Academic motivation is complex and depends on different variables (Pintrich, 2003). Students will be motivated by their awareness of the need for the training and its mandatory aspect, as well as by the expertise the instructor shows for the subject and the way the instructor manages the class.

A key aspect is the educational theory based approach of using different techniques to actively involve the students in their lessons. Getting the three parts right will not only help create a motivating work experience, it will have other benefits as well, such as boosting instructor confidence, which again, can have a positive influence on the classroom experience.

Besides these classroom benefits, this integrated approach is designed to help elevate the library’s position as an educational partner, improving its position in negotiations with regular teachers and education policy makers. During this presentation, the framework will be explained in depth and practical examples will be provided of possible problems, solutions and benefits of this approach.

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Keywords: *Classroom, motivation, planned programme, teaching skills, direct instruction*

Information Literacy in the Focus of Ethics

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Referring primarily to basic skills of reading and writing, information literacy has become more complex, due to the emergence of modern information and communication technologies, as it nowadays includes digital, visual, textual and technological types of literacy. The quality of information and the selection of research methodology directly require a level of information literacy of an individual and society in general. It also reinforces and represents a wholesome foundation for the process of lifelong learning. Information literacy implies that there is an appropriate behavior in finding and using information, which leads to its informed ethical use. High levels of social and academic responsibility are achieved by honoring the principles of ethics. Therefore, the Faculty of Philology has taken on the responsibility to teach students how to use information ethically, i.e. to find appropriate information sources, systematically organize ideas, compare different point of views, but ultimately develop their own opinions and thoughts. We intend to include in our curriculum, primarily our Master's programs, basic ethical principles to be followed when searching and using information. Unethical behaviors, primarily plagiarism, which is booming due to the immense development of ICT, need to be incorporated in the teaching of information literacy. One of the possible ways in which ethical issues can be addressed, such as: plagiarism, information and data protection and research ethics, would be to fully develop students' critical thinking in relation to the appropriate usage of sources and information. This vision of information literacy is dependent on time, space, population, traditions, cultural and economic situations, as well as legal definitions. Compliance with the Law on Copyright and Related Rights, the Law of Libraries, the Law on Cultural Heritage, and international documents that speak of the necessity of achieving intellectual freedom and independence in learning, can have some negative consequences that will be mentioned throughout this presentation.

Libraries, as carriers of intellectual freedom, are actually real promoters of ethical principles referring to competent retrieval and use of information, while at the same time enabling universal availability of publications and information. Librarianship contributes, in general, to the idea of the democratization of society, as libraries became part of the global information society which is based on timely and prompt information. Due to mass usage of a variety of information, libraries are faced with the need to provide an unlimited amount of information to a great number of users, while at the same time respecting the protection of copyrights. Intellectual freedom and its ethical aspects are subject to adopted ethical codes in the field of librarianship. In accordance with national priorities and with the Strategy for the Development of Information Society in Serbia until 2020, Faculty of Philology has dedicated itself to advancing the information literacy skills of its students, in order to enable continuous education, and to the establishment of ethical principles when using our Digital Library, as well as in the use of Moodle platform that should facilitate Distance Learning. It is our intention to exchange, throughout this presentation, knowledge and experience regarding ethical issues mentioned above, as well as good practices.

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Keywords: *Information literacy, libraries, ethics, intellectual freedom, copyrights, plagiarism, information and data protection, research ethics*

Information Literacy and the IUPUI Common Theme Project

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The Indiana University – Purdue University (IUPUI) Common Theme, which grew out of a 2008 one-book/one campus initiative, is "designed to promote campus unity, conversation, and collaboration across all disciplines on timely issues that connect IUPUI to central Indiana and the world." Each Theme lasts two academic years and features a different campus reader for each year; the author of the book visits IUPUI for a presentation that is open to the community. Librarian Kathleen Hanna proposed and provided leadership for the 2011 – 2013 Common Theme, "Change Your World: The Power of New Ideas," which focused on social entrepreneurship. Social entrepreneurship is a global movement to positively impact society's most pressing social, cultural, and environmental problems. The key characteristic is that social entrepreneurs form active partnerships with those being helped in order to develop solutions, rather than doing something "to" or "for" others, much as librarians engage our constituencies in developing lifelong information literacy skills. A campus-wide Common Theme such as social entrepreneurship offers librarians a new way to connect with and support our communities, promote our institutional missions, and reinforce educational standards, including information literacy. Central to introducing and promoting the Common Theme on campus was acquainting faculty and students with resources that show how all disciplines at IUPUI already practice social entrepreneurship in one form or another through teaching, research, or community outreach and experts in the field have parlayed social entrepreneurship into new professions. It is also well represented in the literature of the disciplines and is growing rapidly. One School of Nursing professor reacted with surprise when shown one such article in a major professional journal: "These authors are movers and shakers in the discipline, but I had no idea they were doing work in this area!" Faculty, students, and staff were eager for resources, including articles, books, videos, websites, and access to local organizations, speakers, and authors. The Common Theme website provided a page devoted to resources, including a list of local organizations fostering social entrepreneurship, and also relied heavily on social media (Facebook, LinkedIn, Twitter) to share additional resources, including suggested readings and community events. IUPUI has used a variety of activities to develop and promote the Common Theme, including documentary film screenings, panel discussions, student research competitions, and faculty workshops. This session will offer the best tools and suggestions that the Common Theme and librarian Kathleen Hanna utilized to bring people and resources together to support IUPUI's multidisciplinary research, service learning, civic engagement, classroom assignments and projects, and other academic activities.

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Keywords: *Information literacy, social entrepreneurship, librarian collaboration, special projects*

“Callisto” - A Satellite to Knowledge Construction: An Alternative Perspective to IL

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The paper aims to draw attention to a newly designed Information Literacy (IL) tool, “Callisto”, which was launched by the Library of ATEI of Thessaloniki. Its design and implementation has adopted an alternative pedagogical perspective, considering IL requirements in relation to the development of computer assisted tools (Sitzmann, Kraiger, Stewart & Wisher, 2006).

From integrated library systems, to digital repositories and even IL, libraries aim to overcome their physical boundaries, reach out and step beyond their conventional services by assisting users in becoming information competent in a highly complex and diverse information environment (Henke, 2001). The relevant literature was reviewed in order to identify and highlight several examples of various web based applications, from simple IL tutorials, to innovative projects and complex advanced IL programs integrated into academic curricula (Fong, Leung & Tam, 2007).

Librarians embraced Web 2.0 applications, as it offers alternative ways to build, implement and utilize IT applications – the focus being on simplicity and user self-sufficiency. Teaching procedures in IL seminars/courses has been improved and upgraded, as students are offered a wider range of information in a rather intriguing and mind challenging way.

“Callisto” was designed and developed under the perspective of not only creating a “meeting point” for basic and necessary guidelines for information seeking but rather embracing a whole “universe” of learning. Sectors include the basic web IL tool “Orion” which provides all the important information regarding the IL circle of knowledge, along with several other multifaceted tools, sources and services that constitute a solid and sufficient hybrid model that may transform teaching information literacy content, from a simple educational process to a promising constructivist framework, integrating active learning and critical thinking, in IL. The service operates simultaneously and in accordance with all levels of the IL scale: the deep understanding of a problem, its deconstruction and further reconstruction and last, sharing, reviewing and evaluating of the required information, for its efficient implementation.

Callisto’s design aims to strengthen problem-solving capabilities, thus establishing a solid frame which will support successful and efficient learning attitude. Furthermore practical implications indicate that the findings of the paper may be of assistance to library professionals who plan the development of web based IL tutorial with the implementation of interaction and feedback (Zhang, 2006). “Callisto” constitutes a collaborative interactive learning environment that aspires to engage students into an ongoing learning process, fostering active learning and critical thinking. It assists those who seek lifelong learning by improving their theoretical background on information foraging, providing the necessary practice through its tools, generating evidence regarding the endless possibilities in the information world.

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Keywords: *Information literacy, Web based IL, online IL instruction, media information literacy*

Teaching Focus Formulation in Library Research Process through Categorical Model

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Since 2001 IL courses have been offered by LIUC University Library to help students develop their own independent abilities in research and use of documents to create new knowledge and successfully compete in the workplace, with the aims of raising their awareness of the complexity of the information world and the research process.

The framework for LIUC Information literacy education model is built around a relational vision of information literacy (Bruce, 1997) with emphasis given to the library research process (George, 2008) as a learning process (Kuhlthau, 2004). First results of such educational activities with undergraduate students (Ballestra, 2012a) and high school teachers (Ballestra, 2012b) have already been presented. High school students have also been involved in LIUC Library courses since 2011.

Teaching information literacy education in different contexts and with different audiences helped LIUC reference librarians to develop and diversify LIUC IL education model in order to meet the needs of the different communities. All these experiences and theoretical reflections confirmed the necessity of teaching the library research process in Italian schools and universities, and especially to find the best approach to teach the process of focus formulation through library research methods, and to find research questions. In all the communities we worked with, this phase of the process has always been considered as the hardest step to take.

The key issue of this paper is to prove that, in research process didactical activities, a deep terminological analysis of the main topic based on high quality documents and the organization of the founded terms in a categorical structure to create terminological maps (BNCF 2007-2013, LIUC 1992-2013) can be very useful when teaching undergraduate students and high school students to analyze, focalize and find the research question. Poor terminology and poor capacity of finding the proper documents and analysing the topic in the so called pre-research phase affect especially students' possibility to focalize the subject and start the library research process properly.

The assessment of courses held with undergraduate students between 2010-2012 and with high school students in 2012-2013 will be the basis for the demonstration of hypothesis.

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Keywords: *Research question formulation, library research process, categorical analysis, terminological maps, Italy, undergraduate students, high school students, university libraries*

Three Faces of Information Literacy in Legal Studies: Research Instruction in the American Common Law, British Common Law, and Turkish Civilian Legal Traditions

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Information Literacy (IL) has been defined by the ACRL as the ability to identify, access, evaluate, and apply information in an ethical manner (ACRL, 2000). However, IL skills are not an ossified set of behaviors, and IL skills cannot evolve in an intellectual vacuum, without the content that allows for such skills to emerge from practice. As such, IL "should be contextualized within the structures and modes of thought of particular disciplines (Tuominen, Savolainen & Talja, 2005). In response, a burgeoning IL in law movement has arisen, applying the skills of identification, accessing, evaluation, application, and ethical analyses to legal information and the research methods and tools unique to the practice of law (Kim-Prieto, 2011). Both panelists will present a collaborative paper that follows the outline below.

Our paper first discusses local developments in articulating and applying Information Literacy Standards for law students. We start with the drafting and adoption of the American Association of Law Libraries (AALL) Law Student Research Competencies and Information Literacy Principles, compare it with the British and Irish Association of Law Librarians (BIALL) Legal Information Literacy Statement and briefly discuss the future of Law Student Information Literacy within an international common law framework. We then discuss the incorporation of IL methods and techniques within the Turkish tradition of legal education, and conclude with our vision of how IL functions in legal education, and how it differs from IL in the undergraduate context.

This paper details the general structure of legal education within each jurisdiction, and notes how IL instruction can be fitted into the larger educational structure with minimal effort that results in maximum returns. Participants in the audience will leave with (1) an understanding of IL in law, (2) how it differs from general IL, and (3) how each of the speakers' nations train students in legal research methods and strategies.

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Keywords: *Information literacy, law student information literacy, legal research pedagogy, metacognition in research instruction*

Developing Digital and Information Literacies in LSE Undergraduate Students

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This presentation reports on work undertaken at London School of Economics and Political Science to enhance the information and digital literacy support for undergraduate students. Illustrating good practice, the session should be of interest to practitioners embedding information and digital literacy within their institution. In 2012 a team from LSE Library and Centre for Learning Technology reviewed undergraduate support in information and digital literacy across central services and academic departments. Using the ANCIL (A New Curriculum for Information Literacy) framework (Secker & Coonan, 2012), the team mapped existing support at LSE to the ten strands of ANCIL. ANCIL defines information literacy broadly, influenced by the UNESCO declaration (UNESCO, 2005), as the skills, behaviour and attitudes that make up the informed scholar and the judicious citizen. The review in Summer 2012 revealed pockets of good practice and gaps in provision at LSE. The findings and recommendations (Bell, Moon & Secker, 2012) were endorsed by LSE's Teaching, Learning and Assessment Committee in February 2013. The team is consequently developing a digital and information literacy framework to ensure consistency across the institution. They are also undertaking pilot projects to embed information and digital literacy into undergraduate programmes in several academic departments. Using an action research approach, valuable for evaluating the impact of IL, (Vezzosi, 2006) the pilots will investigate the benefits to students, time required in the curriculum and resource implications of the embedded model. The team has been influenced by research undertaken at York St John University to build academic partnerships (McCluskey, 2011).

The report recommends LSE enhance the staff development programme to ensure that academics understand the importance of digital and information literacies to use the framework for embedding this into teaching. The framework makes explicit the roles and responsibilities for information and digital literacy encouraging support services and academic departments to work collaboratively. Progress on this work will be discussed. Finally information literacy teaching delivered by Academic Librarians is also been reviewed. Working with the learning technologists, the team has developed a portfolio of teaching which can be customized and embedded into undergraduate courses either face to face or online. Bell (2011) suggests that a proactive approach of open dialogue between stakeholders can support change, build trust and foster a greater understanding of issues. This project provides a clear vision of digital and information literacy support but also allows dialogue between academic and support staff about teaching and learning in the digital age. LSE as a research-led university, has a taken a traditional approach to teaching, assessment and skills support. Recognising the need for information literacy has therefore been challenging and the authors will share their observations. Arguably, the framework and the pilots are changing teachers' attitudes about the need to embed digital and information literacy into the curriculum. Only by working in partnership with academic and other support staff will LSE graduates be equipped with a broad range of survival skills for the digital age.

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Keywords: *Information literacy, digital literacy, academic libraries, learning support*

The Evolution of a U.S. History Research Assignment

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For over a decade I have worked with Professor Bernadette McCauley of the History Department at Hunter College attempting to discover how to best develop students' critical thinking skills by means of a research assignment in an introductory U.S. History course. Over time, the assignment's evolution has included traditional short research paper and group podcasts; several times in the past, and in the current semester, she has required an annotated bibliography as the final product. For two years, the students pretended they were a researcher for an historical novelist. This assignment worked so well that the assessment, a rubric developed by the librarian and Professor, is still used.

The course objectives include how to best teach research skills to students early in their college career and to properly assess their work in fulfilling the return on investment required by the college and university. Our efforts include setting course goals that match the goals of the ACRL Information Literacy Standards. Fortunately, Professor McCauley has shown a willingness and inclination to change the assignments in an effort to constantly improve her students' work. Important too, is her eagerness to make the assignments scalable for classes of varying sizes; hence the aforementioned evolution of the assignment.

The class of 200 students meets twice a week for lectures and once a week within nine discussion groups headed up by graduate students. The current assignment entails creating an annotated bibliography and essay that satisfies certain college requirements for writing. The students are required to visit the Metropolitan Museum of Art, choose an object from the American Wing and write how they would go about researching further a person or people who were part of its history. A Curator of the Museum comes to a lecture session to make the students feel welcome and prepare them for the museum visits, which they do on their own. Each discussion group attends a research session taught by a librarian. The teaching assistants also attend this session and work closely with the librarians so that the research component becomes embedded in the coursework.

It should be mentioned that Hunter College reflects the City of New York in the makeup of its student body. A majority of the students not only speak another language at home, they are often born elsewhere and have recently immigrated to the United States. They are being taught how accessible the Met is and this assignment can serve as a beginning for their better using the numerous institutions of this sort that exist in New York.

I will share the well-developed rubric with the participants, since there has been more work in this area within the library world over the last several years. The scope of the effort has also allowed us to compare the assignment within the context of small honors classes and the large required course mentioned here.

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Keywords: *History, bibliographies, citations, assessment, scalable assignments*

Transforming Learning: Challenging Perceptions by Building Partnerships

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The aim of the *Best Practices* paper is to showcase an information literacy program that brought together the skills and expertise of both faculty and professional staff, along with a multimedia designer, to create interactive and engaging modules for commencing students at Australian Catholic University (ACU) via the virtual learning environment.

Cross-unit Collaboration and Best Practice

The cross-unit collaboration was a positive factor of the project and reflected good practice in the way both faculty and professional staff combined their skills to create a quality product. This project built bridges between library, academic skills, learning and teaching and faculty units and raised the profile of the learning and teaching portfolio as a whole. The project team received a university learning and teaching grant to develop an innovative information literacy program that would enhance the scholarship of teaching and learning. The transformational learning afforded students the opportunity to think differently and critically about information and provided students with essential skills in information literacy and academic skills that aligned with the university's key graduate attributes. Furthermore, the strategic alliance formed across professions challenged the way people perceived information literacy and encouraged interaction and dialogue to gain an understanding of literacies from every angle.

This paper utilises a design-based research methodology (DBR). According to Reeves (2000, p. 8; 2009, p. 7), Brown (1992) and Collins (1992), DBR involves:

- addressing complex issues in real contexts in collaboration with practitioners
- integrating design principles with technological affordances to create innovative solutions, and
- conducting iterative and reflective inquiry to test and refine the solution.

Reeves (2009*)* asserts that e-learning effectiveness and impact can be improved through design research methods. This requires ongoing collaboration among researchers and practitioners to design and refine prototype e-learning environments in the context in which they will be used until desirable outcomes have been achieved.

Transformational Learning at ACU: A Professional Development Model

Perceptions were changed during a professional development program and people were inspired to take ownership of the new information literacy initiative. This model was successful in establishing rapport and partnerships between academics, librarians, academic skills advisers and learning and teaching centre (LTC) staff. All staff collaboratively developed a holistic information literacy implementation plan and contributed feedback on the working information literacy prototype.

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Keywords: *Virtual learning environment, constructivism, interactive learning and teaching, cross-unit collaboration, graduate attributes, evaluation, train the trainers, partnership*

Free-Agent Learning: Urban Teens, Information Literacy and iPad Consorting

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The integration of information literacy with iPad application technology offers students innovative and engaging life-long learning opportunities. This best practice session features how our high school library team fostered the school community's use of twenty iPads housed in the library. We urged the administration to lose the battle and support the use of students' personal, hand-held technology. We strive to integrate free agent learning (FAL) (Nagel, 2004) which empowers students to be leaders of their own learning, creating and sharing new knowledge in many formats. The presentation introduces the FAL concept and its relationship with equitable access to handheld technology. It exemplifies curriculum integrated-information/iPad literacy teaching and learning activities. Practical application technology and iPad management is described. Differentiation by learning style and ability triangulate the presentation's components by featuring student work. The transferable strategies are a jumpstart for a participant to apply our strategies to his or her school library practice.

Teens and phones appear inseparable. However, many students have little or no access to personal digital handheld devices. The integration of iPads lessens this critical digital divide. Though some argue that allowing use of a personal device is not fair to those without, we counter that FAL information literacy skill acquisition cannot wait. Reading and evaluating eContent, the creation of and sharing knowledge, collaboration and communication, across the school or around the world, are the 21st Century fluencies required for success in a global community. We incorporate learning strategies that capitalize on capturing the social networking energy students already expend in order to comprehend this new, on-demand learning. We insist on "mindful infotention" an element of "attention literacy" (Rheingold, 2012, p. 54). Thus, integrating library use of application technology with academic content imparts a cognizance that handhelds are personal, digital learning tools. Students must garner the discipline to search and use information responsibly. Also, backstage, but important, is iPad subject matter organization, distribution and storage. These management strategies allow us to track responsible, application technology use.

Librarian/teacher collaborations use a "backwards design" model (Wiggins, 2005, p. 19) in order to integrate apps and research activities that meet curriculum objectives. Examples of student work include chemistry, poetry, African history, theatre and college preparation. When using a personal device or a library iPad, students begin to connect academic learning resources they retrieve in school, the 'cool' free apps, with 24/7 availability. Students work alongside of one another in cooperative groupings using a range of print and digital resources. They use online subscription databases and virtual reference libraries retrieved through the state library portal. The same resources are accessed via library's web page, which hosts a mobile site for handheld devices. Periodical articles are synthesized, cited, and shared for resource-based learning projects. Students utilize an array of Web 2.0 tools, such as *Prezi, Glogster,* and *GoogleDrive,* to present and share new knowledge. They use social networking tools, such as Skype, to practice mock job interviews and participate in art activism projects. This is free-agent learning: The marriage of information literacy skills with independent, evaluative, collaborative, relevant and empowered student learning.

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Keywords: *Free agent learner, application technology, information literacy integration, curriculum, technology management*

If They Build It, They Will Use It: Using Google Sites to Improve Student Research Skills

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When students first enter college they are often unaware of the importance of the research rigors that will be placed upon them. Professors and librarians alike often struggle with how best to teach students new to academic research and unfamiliar with the complexities of a large, online university library system to tap the resources and services available to them. Information literacy courses are designed to help bridge this gap in research knowledge. Traditionally, our undergraduate students have been taught information literacy skills through a combination of in-class lectures, handouts and tutorials of our online resources, with additional class time spent practicing how to use these tools and discussing their importance and benefit to the research process. Access to these handouts and links to the resources the librarians so greatly support were provided to students through the university's learning management system (LMS). But distributing handouts and working in the LMS create temporary resources that are often lost, misplaced or have their access withdrawn. Upon completion of the course, students were losing the information and focused research tools we provided them, with no recourse to get them back.

When the opportunity presented itself to build an online information literacy course, we were also presented with an opportunity to adapt how we present information to our students, and how they can maintain access or even ownership of that information. In deciding on how best to continue with our new course, we chose to go where our students often first look for help, Google, or more specifically, Google Sites. Part of the extensive line of Google products, Google Sites offers the ability for its users to create a template that can be shared and used by others when building a website. Students can pull a template created by their instructor that already contains the pages and formatting that is desired for the coursework and expand upon it as they work through their course project. The website itself becomes the method for students to practice using different research and technology skills, working through different levels of the research process. It also becomes a way for instructors to monitor student work and grade them as they progress in building their site. By the end of the course, students will have a finished website with all of their completed assignments and research methodology attached. Ownership and maintenance of the website will fall to the students to keep as long as they wish. It will not disappear into cyberspace like the resources from their completed LMS courses.

Participants are invited to learn about the production of our Google Sites template assignment and how it is being used by students in our information literacy online course. They will have the opportunity to see a finished site as well as those that are in progress, in addition to learning about the effectiveness of our student research takeaways and how these tools may be applied in their own courses.

Keywords: *Information literacy, instruction, e-learning, libraries*

Developing Information Literacy Program (ILP) Modules for School Library Media Centers in the Philippines

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Information Literacy (IL) has been a long-standing concept in education and lifelong learning. Today, more than ever, different IL Programs continue to emerge and are actively being carried out in various parts of the world especially in the midst of the new digital era. However, here in the Philippines, unlike its neighboring countries where IL Programs are already intensive and comprehensive, ILPs are just starting to take shape in the promotion of lifelong learning and reading, particularly in the basic education sector through the School Library Media Centers.

In general, the budding concept of having ILPs integrated to the Philippine basic education system is faced with two primary challenges: the absence of a standardized content/program and poor logistics in the event of its implementation nationwide. Thus, much of the appreciation and initiative to establish ILPs in the basic education system come from private education institutions. It is with the premise that these private education institutions have more liberty to structure their curriculum and instruction programs according to their own vision/mission, and they are more financially adept to carry out the said programs.

It is through these conditions and context of the ILP in the Philippines that the concept of this study was brought to fruition. This study will serve as a comparative analysis of the ILPs currently implemented in some of the private School Library and Media Centers in the metro focusing on three areas of the ILP: objectives, content, and expected learning competencies. The output would be to produce a more unified concept of ILP for the private basic education system which may also benefit other private basic education schools who are still in the process of establishing their ILPs.

For the data gathering, the authors will look into the current information literacy programs and practices of eight different private School Library and Media Centers in Metro Manila to serve as the sample population of this study. In terms of analysis and interpretation of the data gathered, the authors deem it necessary to include inputs from renowned Filipino personalities in the field of Information Literacy through Delphic Method, in order to bring more depth and comprehension to the study.

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Keywords: *Information literacy, school libraries, school library media centers*

Redesigning Information Literacy Programs and its Effect on Students' Library Use

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Özyeğin University (ÖzU) offers information literacy (IL) programs to engage its users with IL skills and resources. As a young university with growing population every year and new subject areas, it has been adapting and/or revising its existing IL programs for the coming years. The majority of new students take English preparatory classes at ÖzU for up to a year. Within this period, it is ensured that the students complete the programme not only with sufficient English language competency but also with information and life skills to help them throughout their studies and further. The library is particularly involved in delivery of the IL programmes to this first-year student group but also works with undergraduates and graduates, offering them on-demand sessions.

In the 2012-2013 academic terms, the curriculum used in preparatory programs changed and this affected the existing IL sessions. Therefore, the library has been in the process of redesigning its IL programmes accordingly. It used to be the case that the library sessions were given in each module based on the tasks assigned by the faculty, but in 2012-2013 library work-required tasks have been removed from some of the modules and shifted to the advance level classes. The Library sees the preparatory programmes as an opportunity to prepare students to become information literate. Therefore, we insisted on having the sessions as an introduction to the library in two of the modules, and kept the advanced modules to support academic research skills. All of these changes resulted in students who are less informed about library services and who use library resources at a lower rate. The findings of the study conducted for current first year students also confirmed this. In the light of this experience, it was decided to redesign the existing IL programmes. During the academic year, sign-up sessions were embedded into the university's Student Development Program, which develops students' personal, social and academic skills, and facilitates their adaptation to the university's social and academic life in close collaboration with the other units of the university. It was also decided to offer a credit course for 2013-2014, which will help cover every component of the IL programme in 14 weeks.

This paper will examine the effect of this curriculum change and redesigned IL programme on students' library and information use by conducting a survey that was done for 2012-2013 academic year. The paper will also present the new structure of ÖzU IL programmes offering wider integration into the curricula and reaching out to a broader community within the university.

Keywords: *Information literacy, curriculum integration, faculty collaboration, Özyeğin University*

Information Literacy into the Disciplines: The Case of the University of Piraeus Library's Experience

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Information literacy (IL) has been a core activity of academic libraries as the plethora of knowledge resources combined with the rapid advances in digital technologies have resulted in the growth of information's availability to students. Academic libraries and information specialists act as coordinators of the educational procedures rather than other more traditional functions. On the other hand, a lot of guidelines, paradigms, modules and tutorial tools have been developed to support these librarians' new educational roles. Many academic libraries around the world are encompassing in their IL programs these guidelines and subject librarians in collaboration with educators of the relevant subjects organize discipline-based training activities. Although, there is a broad existence of discipline-based IL programs worldwide, little has been introduced in a less spoken language like Greek. Considering this, University of Piraeus Library decided, initially, to create three subject portals in order to enhance the scientific information and briefing of the students into their specific subject field. Each subject portal is referred to a specific discipline (i.e. Banking, Maritime Studies, and Industrial Management). More specifically, each subject portal's content will mainly focus on discipline-based information about: a) Undergraduate and postgraduate programs in Greece and globally, b) Conferences, Meetings, News and Events, c) Directories, Journals, Periodicals, Databases and links, d) Institutions, Research Centers, Associations and Non-Governmental Organizations, e) Subject bibliographies and other services, f) Dictionaries, Glossaries, Terminology and Thesauri, and g) Search engine tools. The initial structure of these portals will be designed for the university's users but it might be used as a prototype for other related institutions in Greece.

The first step before creating the subject portals is to discover the deficiencies and the needs of the University's students. Such a process will give us the necessary background in order to focus in the specific fields of interest and to adjust the IL in the special characteristics and needs of each student and each discipline in general. The discovery of such information is achieved through the employment of a questionnaire which is addressed towards the University's students. More specifically, the questionnaire assesses the students' background regarding their IL competencies in general. Moreover, it gives an initial indication about the components that should be added in the library's subject portals.

This paper aims to describe the identification of the standards evaluation and measurement used in the portals' installation and the potential problems in subject information retrieval in our library. Additionally, it will focus on the first outcomes of the surveys among our university's faculties and students and it will present the organization of IL subject lessons and tutorials that will result from each portal's creation.

Keywords: *Information literacy, discipline literacy, subject portals, academic libraries, metrics and measurement*

Exploring Possibilities in Bachelor Level Information Literacy Teaching

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The University of Helsinki is a large multidisciplinary university. Information literacy (IL) teaching is offered by the Helsinki University Library throughout the university curriculum. In this paper we discuss how our IL teaching is organized in two of our eleven faculties: the Faculty of Law and the Faculty of Arts & Humanities.

When planning IL courses, scheduling has often been a major challenge. In the Faculty of Arts & Humanities subject teachers typically requested IL classes on short notice. Also, the requests often came at the same week, creating unnecessary pressure in the library. In the Faculty of Law, in turn, three seminars are compulsory for Bachelor level students. It is not a good way to organize IL teaching, because students might participate in the same course content three times. Another challenge is meeting the needs of our teacher resources, as the number of students has considerably increased due to a successful effort in establishing academic credit-bearing for library courses.

Building a successful information literacy course requires collaboration between librarians and the faculty. We teaching librarians are members of the teaching committees in both faculties and we appreciate the chance to take part in developing the curriculum.

At the University of Helsinki, earning a Bachelor degree takes on average 2-4 years of studying. At the moment, students in both faculties get one ECT credit for IL studies. The library recommends that students take an IL course at the Bachelor level as the students write their first academic assignments. Searching for information on the student's research topic is a great motivational factor. For the law students an IL course is compulsory. Four courses are offered per academic year and about 200-280 students participate in them. In the Arts and Humanities faculty, an IL course is compulsory in 10 disciplines. In the academic year 2012-13 we are hoping to meet up to 500 students and give credits to more than 150 students. In both faculties, the IL courses include classes and online assignments.

The IL content of the courses focuses on information retrieval, critical evaluation of resources, and reference management. The issues with the use of information remain primarily the responsibility of the faculty teaching staff. The library-driven courses cover, among other things, selecting good search terms, choosing relevant sources of information, conducting searches effectively in international databases, and using reference management tools. The learning material and assignments are delivered in the Moodle virtual learning environment.

We conclude that both the teaching librarians and the students benefit from the compulsory credit bearing courses. It can be an effective, yet flexible way to reach the students. It is rewarding to communicate with the different interest groups, even though in large faculties it is admittedly time-consuming. In the future we expect to find common ground with professors who teach research skills. Cooperation in scientific writing and method courses would place information searching in the context of doing research.

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Keywords*: Bachelor level, information literacy teaching, information literacy course, collaboration*

Rethinking and Strengthening Information Literacy: The New Strategy of German Universities

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In November 2012, German universities agreed to undertake significant efforts to strengthen information literacy (IL) on all levels of their institutions: The General Meeting of the German Rectors' Conference (Hochschulrektorenkonferenz = HRK), which serves as the umbrella organisation of higher education institutions in Germany, passed a recommendation which strongly advises universities to adopt a series of specific measures in order to advance IL. The recommendation is based on an understanding of IL which allows for recent developments in the field of digital information. When discussing IL at higher education institutions, what is usually meant is information retrieval in the classical sense of the term. In contrast, the HRK' understanding of IL additionally embraces the handling of research data and virtual research environments as well as electronic publishing.

The HRK's concept of IL draws on the following definition by Professor Christian Wolff (University of Regensburg): "The totality of all skills and abilities that are required in order to determine situation relevant information needs, to procure the necessary information and then process, evaluate and present this information and identify the conditions of use for the information. In this undertaking, new formats for the presentation of information are involved, in particular in the area of the information visualisation" (German Rectors' Conference, 2012, p. 6). Relying on this definition, the HRK recommendation proposes *inter alia* a series of measures aimed at strengthening IL at universities on all institutional levels:

Students: The teaching of IL should be anchored more firmly in curricula than has previously been the case. Students of all disciplines should complete a corresponding module in the course of their studies.

Teaching staff: University teachers should strengthen their IL so that they can teach this to students successfully. By doing so, they should make allowance for the competences students acquire by everyday self-learning.

Researchers: Researchers should further extend their research-related IL by attending relevant qualification courses or by participating in expert networks, which offer opportunities for cross-learning. Additionally, staff at university libraries and computer centres should expand their skills with regard to profiles such as data librarian or data curator in order to improve the management of research data.

University leaders: Each university's senior management team should have one designated person to take on responsibility for issues related to "information infrastructure" and "increasing IL" and serve as a central point of contact.

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Keywords: *Information literacy, universities, students, teachers, researchers, senior university management*

The Irish Information Literacy Project: The Gradual Building of a National Policy for Information Literacy

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In recent years, the Republic of Ireland has witnessed a growth in information literacy (IL), with its importance recognised in independent and lifelong learning; there have also been some key developments which have helped to raise the profile of IL and facilitated a more coherent national approach to IL development (O'Brien & Russell, 2012). Despite this progress, there is a lack of an integrated approach for information literacy development and no unified national strategy for IL yet exists, either sectorally or cross-sectorally and IL "has not been recognised as such at the highest political level [in] Ireland" (Webber & McGuinness, 2007).

This paper outlines the development of information literacy in the Republic of Ireland since 2006. The author discusses the work of Library Association of Ireland's (LAI) Working Group on Information Literacy (WGIL) 2006-2010 which was convened in 2006 to make recommendations to the LAI for the development of a cohesive national strategy for information literacy education and advocacy across all library and information science sectors in Ireland. WGIL provided a review of cross sector information literacy activity from 2006-2008 and made 10 key recommendations on the advancement of IL in Ireland available in a final report in 2008. The paper will focus on how the work of this group has played a significant role in advancing a policy driven approach for information literacy at national level. The recommendations of WGIL have been furthered by the successor to WGIL – the LAI's Task Force on Information Literacy (TFIL) which came together in 2011 and is taking steps to implement the recommendations made by WGIL in their final report. TFIL is currently building on the work of WGIL - investigating information literacy best practice and IL activities in the various sectors in Ireland, focusing on practical ways in which IL education can be further developed and advancing the goal of a more integrated IL strategy for Ireland. TFIL has already implemented some of the short term recommendations of the WGIL report and advanced those which are more medium to long term. Much of the work of both WGIL and TFIL has involved ongoing advocacy initiatives, promotion and dissemination of information, which have proved vital to raising awareness of the strategic value of information literacy nationally. These strategies will be discussed in the paper, in addition to some of the difficulties and practicalities of the cross-sectoral approach. Suggestions for further research and development and a vision for information literacy in Ireland will also be outlined. The overall aim is to create a national framework for information literacy for Ireland that would ensure a more coherent approach and promote the development of IL in education, the workplace and wider society.

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Keywords: *Information literacy, Republic of Ireland, Library Association of Ireland*

Development of Library Teaching in Law Programme Education, Uppsala University

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Objective

Since 2008 the teaching team at the Law Library has been working to transform information literacy instruction. For a lawyer, learning how to find legal materials is an important professional skill. In recent years more and more material has become accessible electronically. A change has occurred from print material to electronic sources. This poses new challenges for the law librarians.

A few years ago Library instruction consisted mostly in telling the students about print material and showing databases, with little student activity. Focus was on the teacher as expert and lecturer and not on the students' own learning. The result was less motivated students and no clear correlation with the students' own task. We experienced a need to motivate students and clarify how information searching is related to the topic and thus is a part of legal method and a lawyer's professional skills.

Method

The change was made in several steps. The online Law subject guide proved to be a useful tool in library instruction. The clicking of databases was reduced. Instead we informed the students in which databases they could find the electronic material, and let them practice seeking information for their paper. More focus was placed on information seeking strategies and on student activity. The printed material was presented as a basis for understanding the structure of legal sources. Goals for the library seminar was formulated and presented to students at the beginning of class. A self-evaluation has made it possible for teaching librarians to monitor our teaching experience for several years in a row.

Results

The effort to change the library instruction sessions has led to more focus on students' own activity and learning. Goals for library seminars give structure to the teaching and make it clearer what students can expect. Students get the opportunity to reflect upon their own learning at the end of the session through the formative evaluation. The library seminars are linked directly to students' specific needs to find information, which increases motivation. The first time the students come to the library, at the beginning of the term, they receive an introduction to the library. During the tour of the library they solve some tasks that the librarian has assigned. Students come back for a library seminar a few weeks later when they have started writing their paper. In this way the teaching session is performed at a time when the students are most motivated to search for information. A degree of progression in information retrieval has thus also been introduced.

Focus is now on student activity and problem solving as well as on legal methods and basic information retrieval skills. Students no longer learn only detailed knowledge about the library, databases, books and articles, but also get strategic knowledge about how to find information. Library teaching is more clearly linked to the students' task. In Spring 2013 further development took place through students' group-work.

Keywords: *Academic libraries, library instruction, instructional development, law libraries, evaluation, student activity, online subject guides*

Developing Information Literacy at German Universities: The Role of the University Libraries

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Teaching information literacy has become a core issue of German university libraries. Information literacy is a major topic in the Master plan for Germany's information infrastructure by the Joint Science Conference. The commission "Internet and Digital Society" of the German Bundestag states significant shortfalls concerning the information competency of students and scientists. Consequently, the German Rector's conference has recommended integrating information literacy courses into the curricula and enhancing the role of the libraries to create new information structures. In order to meet the requirements of politics, science and society, libraries have developed information literacy standards for university and high school students and formulated learning objectives that are going to be realized in cooperation with faculties and schools.

This contribution gives an overview over the information literacy activities of the German university libraries. It analyzes the results of the national information literacy statistics, discusses the standards of information literacy in Germany and presents best practice at university libraries. It will be shown how the library courses are accepted and how the libraries change their organizational structure and transform into teaching libraries. The German library statistics from 2011 shows 50.000 library lessons presented with more than 500.000 participants. Topics include search strategies and databases, but also reference management, e-publishing and Open Access as well as legal and ethical implications. Here lectures are mostly complemented by tutorials using collaborative didactic methods and e-learning modules. About 20% of the courses are aimed for high school students who have become an important target group for many university libraries.

A special focus lies on the cooperative initiatives based on the regional information literacy working groups and the National Commission for Information Literacy of the German Library Association. It is discussed how these networks support the local libraries by publishing recommendations and organizing peer group supervision and workshops. The central communication and exchange platform is the national website www.informationskompetenz.de which contains guidelines, statistical data, concepts, presentations, exercises and information for librarians and students.

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Keywords: *Germany, university library, information literacy, curricula, standard, statistics, cooperation*

The Impact of Massive Open Online Courses (MOOCs) on Information Literacy Instruction

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What do Khan Academy, Udacity, Coursera, and edX have in common? They are all part of the recent trend of moving education – higher education in the case of the latter three – from the traditional classroom into the world of self-guided, open online access. These Massive Open Online Courses (MOOCs) are currently beginning to transform the landscape of higher education in the United States and beyond, as institutions are recognizing the immense potential of reaching learners at broader, more diverse levels than ever before, and as a growing number of students is enrolling in conveniently accessible courses that give them the opportunity to view and review learning materials anywhere at any time. The impact of this trend has thus evoked a wide and also wild number of speculations regarding the future of higher education, ranging from the predicted downfall of the traditional, campus-based university, to a more moderate outlook of a cooperative future between online and face-to-face instruction.

All of this begs the important question how libraries have been affected by this trend. While the scholarly literature supports and welcomes the idea of augmenting traditional information literacy instruction with online instruction tools, the library profession as a whole has not been affected by the educational opportunities and challenges presented by MOOCs. However, as our profession is re-defining itself in an age of stagnant budgets, staff shortages, and a clientele that is accustomed to doing nearly everything online - including educating itself- the library community is well advised to explore alternatives to traditional services and find new approaches to teaching and information literacy instruction.

Inspired by the MOOC movement, Kansas State University (KSU) librarians in cooperation with librarians from the University of Kansas Medical Library (KUMed) have initiated the *New Literacies Alliance* project. The main objective of this project is aimed at providing the undergraduate community with a collection of online lessons that will ultimately result in the same quality education as face-to-face information literacy instruction. As part of our presentation, we will thus introduce a model of moving traditional information literacy instruction from the classroom to an online environment, and explain how this project developed at KSU and KUMed over the course of time. Finally, we will describe how MOOCs have influenced both content and design decisions within the course of the implementation of this model and address best practices in the implementation process.

In order to help attendees understand limitations and challenges, as well as implications of moving information literacy instruction into an online environment, this presentation will explore software options for housing content online. What authoring software and online platforms are currently available that can support librarians in this type of endeavor? In doing so, the main focus and objective will lie with SoftChalk Cloud, a cloud-based authoring platform for online content creation. Attendees will learn about the implementation process within SoftChalk Cloud, the platform's barriers and limitations, and how professionals can circumvent these barriers in order to successfully create content of maximum educational value.

Keywords*: Information literacy and metaliteracy, information literacy and teaching techniques and methods, information literacy and instructional design, information literacy and emerging technologies, MOOCs, new literacies alliance*

Between Scylla and Charybdis: Information Literacy for PhD Students Between Generalization and Specialization

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When developing and teaching information literacy interventions for PhD students as we have been doing for a number of years at Vienna University Library, a number of questions arise: How much can very specialized audiences profit from generic information literacy courses? How specialized do information literacy workshops have to be in order to be perceived as relevant by PhD students beginning to develop their identities as researchers? Can researchers from different backgrounds learn to become information literate in heterogeneous groups?

Fleming-May and Yuro (2009) have argued that library services become relevant to PhD students only when the special needs of this advanced user group are met. Instruction should respond to specialized information needs rather than be too basic or too general. The findings and recommendations of a recent survey of the information behaviour and practices of PhD students (Drachen et. al, 2010) also emphasize the need for specialization. Indeed, there has been a trend in the discussion of the concept of information literacy to define it as a socio-cultural and context-specific phenomenon (Lloyd and Williamson, 2008). As subject specialists the authors agree with this trend (Lach, 2012), yet both of them teach generic information literacy courses for PhD students. The question is whether or not a generic basic information literacy workshop can be the basis for successful information literacy development of a very specialized target group.

Why a generic course is taught for PhD students in Vienna is due to some extent to structural factors, such as the comparative numbers of teaching librarians versus PhD students at a very large university (91,000 students). However, it is also the result of the success of generic database workshops in other contexts. This led to this type of workshop being integrated into Vienna University's Doctoral Center Workshop Program, in which the library has participated since 2009 with a number of different workshops, among them the ones taught by the authors.

The introductory workshops taught by the authors are offered to PhD students just about to embark on their research projects. The aim is to teach the information search process and information management in a way that enables PhD students to apply generic strategies to their own contexts and develop them further. PhD students are helped to develop source awareness as well as self awareness as information seekers. Since they already have begun to see themselves as subject experts, information competency is advertised as an element of their identities as researchers. Workshop feedback shows that participants often expect to get more specialized help with their particular research projects but also that some of the basic information strategies are new to them and that they find the course helpful (Rohrmoser, 2012). Offers for further more specialized research support is hardly ever taken up. The balance of generalized and specialized elements in the introductory workshop is one that needs to be continuously renegotiated. On the whole, the authors have found this course to have a useful and successful format.

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Keywords: *PhD students, doctoral students, generic information literacy, specialized information literacy*

Student-Learners Plus Librarian-Learners Equals a True Community-of-Learners: A Best Practice

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Sociocultural learning, based on the work of L. S. Vygotsky and other constructivists, means students collaborate with one another in open ended, but structured, activities with one or more teacher or facilitators. In addition, the teacher or facilitator, together with the students, constitute a community-of-learners where everyone within this community is considered a learner. Vygotsky contends, as humans, we learn through our social interaction with others, and, "it is through others we become ourselves" (1987, p. 105). More and more librarians are applying sociocultural learning theories to their information literacy instruction, due in part to recent articles touting the advantages of sociocultural learning experiences. Articles in the library literature discussing this type of learning in information literacy instruction emphasize the advantages of active learning, discovery learning, and constructivism (Wang, 2011; Wang, 2007; Meehan, 2007). Some of these articles also mention the community-of-learners specifically, defining what it means, and briefly discussing the roles of everyone involved. Often the articles focus on ways to achieve learning outcomes for the student-learner, but rarely include a discussion of learning outcomes for the librarian-as-learner, even though everyone in the "community" is considered a learner. The articles that do mention librarians-as-learners do so only in relation to online information literacy instruction (Bhavnagri, 2005; Hight, 2010), and few explore what it means to be a librarian-as-learner or identify it as a best practice. Student learning outcomes have always been important, and are even more so in this era of assessment. However, when instruction librarians espouse sociocultural learning and consider themselves as learners too, they are able to more positively affect student learning outcomes because the community-of-learners works for each member and everyone benefits. This presentation will include the results of an informal survey of librarians who apply sociocultural learning theories to their teaching to see how they perceive their roles in a community-of-learners; what they see as their own learning outcomes; and what benefit all of this might have for student-learners and librarians-as-learner. In addition, it will present this as a "best practice" for information literacy instruction applying sociocultural learning theories.

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Keywords: *Librarians-as-learners, sociocultural learning, community-of-learners*

Creative Outreach: Administrators Marketing Information Literacy in the Gulf Region

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Library administrators in the United Arab Emirates and Qatar provide techniques and strategies for building awareness of the importance of implementing viable programs for Information Literacy across the curriculum. This presentation will present examples of outreach and marketing efforts created to support information literacy learning. The Virginia Commonwealth University Qatar Library's Gaming Lab, Writing Tutors and Teaching and Learning Collection will be presented as examples. The Petroleum Institute Library's Independent Learning Center, Information Literacy Peer Tutors, Information Literacy Mobile Scavenger Hunt and Faculty Information Literacy Champion Grants and many other regional activities will be explored. The Gulf Region's unique university education models will be explored; providing context for the challenges in the development and advancement of information literacy regional initiatives.

The speakers will discuss the learning outcomes at the outset of these projects. Specifically focusing on the identification of information literacy assessment methods and resources that could be used in the Arab world; which are adaptable, flexible and address specific regional issues. In addition, presenters will discuss issues surrounding information literacy assessment and program development in the Gulf Region in order to engage authentically with colleagues in different regions and circumstances using the Association of College and Research Libraries' best practices. They will examine strategies used in a blended learning environment in order better to teach information literacy skills to second language learners. The role of international, regional information literacy professional networks will also be highlighted. The history of the Information Literacy Network of the Gulf Region will be shared; and the impact this network of professionals has had on the spread of information literacy movement within the region.

Presenters will share international, regional and local marketing strategies; as well as proven models of marketing information literacy within the academic enterprise. Audience members/readers will learn about information literacy success strategies. Examples of how faculty, administrators and other critical stakeholders within the academic enterprise are enlightened about the impact of proactive information literacy initiatives will be thoroughly reviewed. Overall, readers/audience members will be inspired to cultivate successful information literacy initiatives through creative collaborative partnerships, and understand how library leadership plays an active role in establishing a supportive and conducive information literate environment.

Finally, the authors will discuss the perception of libraries, librarians and the profession within the context of the society and culture of the developing nations within the Gulf region. The commonly held perceptions of libraries have a significant impact on the creative strategic planning that is required to market and promote libraries' powerful influence on the development of an academic institution, the local community and society as a whole.

Keywords: *Information literacy, international and comparative librarianship, Gulf Region, marketing strategies*

A Grand Challenge: Reflecting on University Science Curriculum Design, Collaborative Partnerships and Integration of Information Literacy Skills

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In 2012, Queensland University of Technology (QUT) committed to the massive project of revitalizing its Bachelor of Science (ST01) degree. Like most universities in Australia, QUT has begun work to align all courses by 2015 to the requirements of the updated Australian Qualifications Framework (AQF) which is regulated by the Tertiary Education Quality and Standards Agency (TEQSA). From the very start of the redesigned degree program, students approach scientific study with an exciting mix of theory and highly topical real world examples through their chosen "grand challenge." These challenges, Fukushima and nuclear energy for example, are the lenses used to explore science and lead to 21st century learning outcomes for students. For the teaching and learning support staff, our grand challenge is to expose all science students to multidisciplinary content with a strong emphasis on embedding information literacies into the curriculum. With ST01, QUT is taking the initiative to rethink not only content but how units are delivered and even how we work together between the faculty, the library and learning and teaching support. This was the desired outcome but as we move from design to implementation, has this goal been achieved?

A main component of the new degree is to ensure scaffolding of information literacy skills throughout the entirety of the three year course. However, with the strong focus on problem-based learning and group work skills, many issues arise both for students and lecturers. A move away from a traditional lecture style is necessary but impacts on academics' workload and comfort levels. Therefore, academics in collaboration with librarians and other learning support staff must draw on each others' expertise to work together to ensure pedagogy, assessments and targeted classroom activities are mapped within and between units. This partnership can counteract the tendency of isolated, unsupported academics to concentrate on day-to-day teaching at the expense of consistency between units and big picture objectives. Support staff may have a more holistic view of a course or degree than coordinators of individual units, making communication and truly collaborative planning even more critical. As well, due to staffing time pressures, design and delivery of new curriculum is generally done quickly with no option for the designers to stop and reflect on the experience and outcomes. It is vital we take this unique opportunity to closely examine what QUT has and hasn't achieved to be able to recommend a better way forward. This paper will discuss these important issues and stumbling blocks, to provide a set of best practice guidelines for QUT and other institutions. The aim is to help improve collaboration within the university, as well as to maximize students' ability to put information literacy skills into action. As our students embark on their own grand challenges, we must challenge ourselves to honestly assess our own work.

Keywords: *Information literacy, collaboration, curriculum design, tertiary education*

Training Models and Best Practices in Reading and Information Competence: Practical Knowledge and Research in Two Academic Courses on IL

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Our report presents the best practice from State University of Library Studies and Information Technologies in Sofia, focusing on examples from two courses. The first is "Information literacy – programs and models". It is tailored for undergraduates specializing in "Library and Information Management". The students have to learn how to organize different events to foster IL skills for children and schoolchildren in the library. The undergraduates are shown presentations and visual aids for best practice of IL programs, successfully applied in British, American and German libraries. Then they have to work in teams in which they read some materials, perform searches, and compare information that they find in traditional and Internet sources for at least for one program in a foreign library and one in Bulgarian library. Through that research they discover the differences between the implementation of the IT forms. For their exam, every team prepares two programs – one for children 0-6 years old, and one for schoolchildren. They select the topic and class. Another option for independent work is to interview a group of children in kindergarten or in a class at school. Then they have to choose appropriate book titles and make leaflets for the appropriate group. The results of the studies are discussed during lectures and exercises.

The second course – "Information Literacy and Media" is for masters students specializing in "Media, Information and Advertising". In the workshops, we discuss various forms for IL used in libraries, publishers and medias in USA, Germany and Bulgaria. The main aim for the students is to analyze the media's reports for events related to reading or information competence. They have to write some short materials by themselves. For their exam they have to choose between several alternative tasks and to present the results in the form of a course project. One of them is to analyze the materials about IL in one print or electronic media. They make conclusions about length of the materials and the print area, the expression's tools, target group and etc. Finally they write a comment on the effectiveness of the used forms. Another task is to study electronic publications for stimulation of reading or for how the use of IT can be helpful. They have to present the forms and comment on their effectiveness.

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Keywords*: Information literacy, reading competence, information competence, classic and interactive methods of teaching, children and schoolchildren, media*

Information Literacy Assessment in Higher Education in Light of the European Qualifications Framework

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In the Norwegian Qualifications Framework (NQF) (Ministry of Education and Research, 03.02.2012), the national answer to the European Qualifications Framework, intended learning outcomes are presented as descriptors which the students are expected to possess by graduation at different levels. In the NQF the descriptors are called *knowledge,* defined as "An understanding of theories, facts, principles, procedures in subject areas (…)", *skills* defined as "The ability to utilise knowledge to solve problems or tasks (cognitive, practical, creative and communication skills)" and *general competence* defined as "The ability to utilise knowledge and skills in an independent manner in different situations". In Norway operationalization of the descriptors are to be embedded into the curricula in all higher education institutions' (HEIs) programmes and courses from 2013. This fact gives the academic librarians in HEIs a golden opportunity to discuss how to embed information literacy (IL) into the curriculum, alongside faculty.

How do the curricula of subject programmes and courses where the University of Bergen Library (UBL) give IL courses describe the required knowledge, skills and general competences, including IL? Do we know how IL is assessed?

Academic librarians in HEIs aim at contributing to a relevant IL programme which supports the students' learning outcomes in their subjects, especially regarding academic writing. According to teaching and learning theories relevant to higher education, learning outcomes should be assessed in a holistic frame where curricula including intended learning outcomes, teaching methods and learning activities are aligned to support the students' learning (Biggs & Tang, 2011; Ramsden, 2003; Torrance, 2013). In line with these theories, the students' IL learning outcomes should be assessed within the holistic frame of a particular subject curriculum.

The paper will include a review of the scholarly literature on assessment and evaluation of those IL courses and programmes where the subject curriculum describes students' intended learning outcomes for IL. Furthermore the paper will present and analyse data from a survey of academic librarians at the UBL. Survey respondents were asked about their subject areas and how IL is described in the curriculum, and about their contact with the academics. The librarians were also asked whether they were able to attend a focus group interview at a specific time. The data from the focus group interview thus supports the main survey data. This information was gathered in March 2013. Preliminary findings show that several subject curricula at the university are following up the NQF scheme, which includes (aspects of) IL under the subject's intended learning outcomes; and, in addition, that academic librarians at UBL do collaborate well with academics in developing IL courses.

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Keywords: *Information literacy, IL, higher education, assessment, evaluation*

On Track for Doctoral Students?

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Research support is currently a hot topic for university and college libraries (see, for example, CIBER, 2010; MacColl & Jubb, 2011; Voog et al, 2013). PhD students, traditionally defined as members of established research communities, are increasingly being defined as students. This transition is at least evident in a Scandinavian context. With regard to information literacy teaching there is a need for libraries to develop different approaches for the teaching and supervision of postgraduate students compared to undergraduate students. In our paper the following questions are discussed: 1) What do doctoral students need from the library? 2) What are the constituents of information literacy in the context of postgraduate research? and 3) How should we define efficient and relevant research support for doctoral students?

These questions also served as starting points for the three-year project "Information Management for Knowledge Creation". The main goal of the project was to develop web-based information literacy modules for PhD students. In the first project phase, we mapped the information needs, behaviors, and practices of PhD students. And in a second phase we developed the modules in accordance with our findings.

Through a literature review and a focus group study, we found that information seeking behavior closely relates to established methodologies in the students' disciplines and that time is considered a scarce resource. Hence, two key challenges for developing the modules occurred; to convey our selected topics in a language that relate to disciplinary research processes, and to clearly demonstrate that knowledge about literature resources and skills in using these, will improve the candidates' ability to use their time more efficiently (Gullbekk, Rullestad & Torras-Calvo, 2013).

To ensure that we kept in line with our findings, we applied both usability-testing and content-focused interviews as guiding tools in the second phase of the project. Usability-testing was performed in different stages of the developing phase. At three different points in time, test persons (14 PhD-students from different disciplines) gave feedback to the web-based modules, according to a structured guide. The intention was to observe and receive feedback whether the test-persons were able to identify the information they were questioned about. In addition to this, a content-focused interview was conducted with four PhD-students. They were interviewed in more detail and asked whether the content on the website was consistent with the challenges they experienced in their research. The usability-testing and the interviews led to changes in the information architecture of the modules to enhance navigability, and in establishing a clearer terminology throughout the different pages of the modules. The website, *PhD on Track*, will be launched by the end of May 2013. Recent data from usability testing and data from upcoming user-evaluations will be added to the discussion in order to scrutinize whether a match has been reached between post-graduate information literacy needs and our support service.

"Information Management for Knowledge Creation" is a collaborative project ran by the libraries at the Bergen University College, the Norwegian School of Economics, and at the Universities of Bergen, Oslo and Aalborg.

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Keywords: *Information literacy, web-based tutorial, PhD students, research support*

Planning Partnership Strategies for Information Literacy Training: The Case of University of Botswana Library

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It is known and accepted globally that education is critical for the survival and success of individuals and for the nations. One of Botswana's 2016 Pillars 'An Educated, Informed Nation' recognises education as crucial for the well being and success of its people (http://www.vision2016.co.bw). The University of Botswana states in its Strategy for Excellence, 2008, Priority Area 4: Strengthening Engagement and Area 5: Improving Student Experience goals which have guided library professionals in working closely with academics to empower students with the necessary learning and research skills (University of Botswana, 2008). Although engagement in the Strategy for Excellence was mainly intended locally, regionally and internationally, library professionals have been engaging with academic staff in planning their informational literacy activities with the aim of embedding this into the curriculum more so that information literacy is seen as having the ability to forming the basis for lifelong learning and is common to all disciplines, to all learning environments, and to all levels of education (Welsh & Wright, 2010). The objective of this paper is to discuss the information literacy partnerships at the University of Botswana in which librarians work closely with faculty to deliver information literacy skills. The partnerships include the General Education Course GEC 121 and GEC 122: Computing and Information Skills Fundamentals I and II between Library professionals and Computer Science lecturers. It started in August 2002 and ended in April 2010. COM partnership between Communication and Study Skills Unit lecturers and Library professionals resumed in August 2011 and is still continuing. A third collaboration in this program is Course-Linked Information Literacy, which is a partnership between Academic staff and Library professional. Course-linked IL was previously conducted as Bibliographic instruction and is aimed at reaching out to other levels of students who are not included in the General Education courses as well as embedding IL into the curriculum This partnership recognises information literacy as a platform on which both academics and library professionals can contribute towards the University of Botswana's Strategy of Excellence, and also assist in seeing Botswana become an educated and informed nation by 2016. The paper will examine each partnership, assess its strengths and weaknesses, and show how these partnerships bring out the intended outcomes such as students' ability to locate, analyse, evaluate and synthesise information from a variety of sources in a planned and timely manner, as well as their proficiency in the appropriate use of contemporary technologies (Welsh & Wright, 2010). The paper will also draw examples from two departments whose students have participated in the library course-linked Information Literacy to highlight the importance of faculty-librarian collaboration, and also based on comments made by students suggest interventions by stakeholders such as Student Representative Council in order to ensure more coverage and adoption by all faculties university wide.

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Keywords: *Information literacy partnerships, academic staff and library professionals, library and faculty collaboration*

Information Literacy and Lifelong Learning: How Early Can We Start?

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The objective of my *Best Practices* session is to share my experiences as a teacher, teaching students in grades 6-12 about information literacy and how they can become information literate. The best practice that I will present is how I developed and used a "key" to effectively deliver the concept of Information Literacy to my pre-university students, and how this "key" can work for all ages from infancy to adulthood helping to develop lifelong learners *and* creators. I will demonstrate that the key to my success in teaching Information Literacy is: Teaching Information Literacy through *critical thinking*. Critical thinking is the actual cognitive "key" that unlocks the concept of Information Literacy which can be a difficult concept for even the brightest adults because IL can be such a deep, all encompassing, and nebulous subject to get our minds around. This is evidenced by the fact that there is currently no universally accepted definition of Information Literacy…though I will unveil a definition at my session that I've developed and that Mr. Paul Zurkowski has encouraged me to bring to light.

Inspired by an email exchange I had with Quantum Information Physicist, Professor Dr. Anton Zeilinger, of the University of Vienna in 1999, I've been teaching Information Literacy ever since, starting with my high school social studies classes (grades 9-12, ages 14-18, with students possessing IQ's from 70 to 160+). I went on to create, develop and teach a specific unit on Information Literacy through critical thinking to middle schoolers (grades 6-8, ages 10-14) as part of my Language Arts curriculum. Since critical thinking can be taught to all ages I am extrapolating that all ages can be taught IL too, thus aiding in the development of lifelong information literate learners and creators.

Lifelong learning will truly be life long if we teach information literacy to our young, starting with its "key": critical thinking. Information literacy is an integral part of 21st century skills, and increasing an understanding and application of information literacy in K-12 education is necessary to prepare our students to be global lifelong learners in the information age, and lifelong creators too! Several studies have suggested that a barrier to developing an information literate society is the lack of IL behavior modeled by school teachers (Loertscher & Woolls, 2002.) I have developed a critical thinking/Information Literacy formula that has been very effective for teaching IL to my students (ages 10 to 18+). I will present and explain this formula at my *Best Practices* session so that school teachers/instructors/leaders can adopt and model good IL behavior so as to help them teach others how to be information literate. The formula is as follows: aaccrr = v@g&t.

The formula is in mnemonic format and when followed fuels critical thinking and thus will help to establish, maintain and increase information literacy across the globe.

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Keywords: *K-12, critical thinking, information, literacy, schools, lifelong learning, literate society, information age, 21st century skills, best practices, middle school students, high school students*

Collaborative Learning and Information Literacy: A Proposal

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Collaborative learning is a pedagogic trend; it has been used for many proposals. Basically, this is an instruction method in which learners of different abilities and interests work together in small groups to acquire new knowledge. The learners are responsible for one another's learning as well as their own. It represents a significant shift from the typical teacher-centered or lecture-centered milieu in learning experiences. There are different kinds of collaborative learning strategies, and it can be implemented in person or by distance models (including online mode).

One of the biggest challenges for information literacy is that people do not recognize the need for information skills to improve their everyday lives. Because of this, people do not like to subscribe to information literacy experiences or programs. I propose that if they belonged to a learning community, they would enjoy learning information skills. The main collaborative learning strategies to create information literacy programs could be community of practice and online communities.

This contribution deals with the idea of using collaborative learning as an alternative way to create information literacy experiences. Information literacy based on community of practice and online communities will support lifelong learning because people will acquire information abilities to solve many of their daily problems, and will learn in their preferred space and time. Finally, they would be accompanied by others in the same conditions.

This paper includes: the concept of collaborative learning; background of collaborative learning and information literacy; collaborative learning strategies; community of practice; online communities; and collaborative information literacy possibilities.

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Keywords: *Information literacy, collaborative learning, community of practice, online communities*

Information Literacy Initiative at East West University Library, Dhaka, Bangladesh

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Academic libraries are the store houses of resources for lifelong learning. They support academicians who contribute to the growing body of world knowledge through their use of these resources. This paper will describe information literacy training programmes organized and conducted by East West University Library, as well as present a picture of the current state of IL initiatives throughout Bangladesh. When comparing developed and developing countries regarding the promotion and implementation of information literacy, we see that developed countries offer plenty of IL curricula and syllabi, which is the opposite of the situation in developing countries (Pejova, 2002). As a developing country, in Bangladesh there is still a lack of professional and management level awareness of developing strategies for IL education and there is a severe lack of information literacy policy guidelines, standards and generic literacy module, training and teaching materials in academic institutions. The concept of IL is almost absent in higher academic institution (Islam & Tsuji, 2010). Many library professionals do not know the meaning of information literacy. In Bangladesh the term is not a popular one. People are confused about this term (Shuvo, 2009.) In this situation, a comprehensive training programme is necessary. First the term should be popularized. Then different seminars, symposia, and conferences should be organized by different educational institutions. Information Literacy has very significant implications for today's knowledge based society, but unfortunately, in Bangladesh as in most other developing nations, there is little awareness about the concept and it's far reaching impacts. No proper planning mechanisms have been formulated to deal with the information explosion and making effective and judicious use of information. A nationwide campaign of information literacy can help us immensely in this regard (Hoq, 2006). Experience shows that academic librarians have very little opportunity to influence curriculum design of IL. Other factors include a limited understanding of the inherent link between generic attributes of IL and the library's contribution to development. Discourse on information literacy is promoted in college and universities in the United States, and accrediting bodies emphasize its necessity, still little gets done in many instances. Librarians are doubling their efforts to achieve any far reaching results, yet concede the lack of institutional, human and monetary resources to proceed with any ambitious programs. Administrators struggle with their priorities. Faculty marches on as through no concerns existed (Owusu-Ansha, 2004). If these challenges are present in developed countries, one can imagine the barriers and challenges in a developing country like Bangladesh. East West University library is organizing and conducting national, regional and international workshops, trainings and seminar of information literacy, health information literacy, and digital literacy. It is noted that some other universities, especially private universities of Bangladesh such as Independent University, Bangladesh (IUB), BRAC University and the University of Liberal arts Bangladesh (ULAB) have made progress in this area also. Some universities are planning to organize and conduct different trainings courses of information literacy. It is an enormous task to assess and compare the full range of sets of the workshops and trainings needed. The present study will focus on IL initiatives at EWU library, Dhaka, Bangladesh only.

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Keywords: *Information literacy, East West University, Bangladesh*

MIL Competences Map: Call for Comments

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The question of media and information literacy (MIL) indicators is becoming more and more pressing worldwide. The Modern Poland Foundation is going to report on the progress in this area in Poland. The concept of the "Media and information literacy competences catalogue" will be presented. The conference participants will be invited to take part in the public consultation process which will lead to publishing a second, reviewed edition of the catalogue.

In 2011, when The Modern Poland Foundation started working on the "Digital Future" project, there was no cohesive programme for raising information and media literacy levels in Poland. Nor did a comprehensive source of information on the state of media and information literacy in Poland exist. Therefore, the first necessary steps were collecting all the available data, examining best practices from abroad and mapping out most significant local initiatives from public, private and non-governmental sectors. The conclusion drawn from this analysis was that one of the primary obstacles to the development of an information and media literacy programme was the lack of a common understanding of "media literacy" and "information literacy", as well as the lack of documents specifying their scope.

This is why an interdisciplinary team of experts created "Media and information literacy competences catalogue". It covers 8 broad categories; information use, media and relationships, media language, creative use of media, ethics and values, media law, safety and economical aspects of media. The competences have been assigned to 6 stages of formal education and 3 groups of lifelong learning, based on the competency level. In the result, we have thematic fields in one dimension and age groups in the other. Combined they provide a map of information and media literacy, which allows identification of knowledge, skills and attitudes for every age group in every thematic field.

Publishing the catalogue enabled moving public debate about information and media literacy to a whole new level of detail. It was recognised by the Polish UNESCO Committee as a national contribution to Information for All Program (IFAP). It also has been translated into English and Russian. It is regarded as the point of reference by teachers and other organisations working in the field. The Modern Poland Foundation used it as a tool for creating the first complete set of educational resources to use in schools, libraries and community centres. The goal is to create a full programme for all age groups.

The catalogue was designed to enhance further debate and discussion. It was published under a CC-BY-SA license, which allows for it to be developed, elaborated and adjusted. Because 18 months have passed since the publication, there is a need to review its contents through international consultation. It will be open to both scholars from the information and media literacy field, as well as practitioners working in this area. From November 2013 the catalogue will be available for comments on-line. All contributions will be reviewed by an expert working group, who will prepare a second edition of the catalogue. The anticipated publication date for the second edition is mid-2014. We hope that the international community of information and media literacy experts will join our initiative and provide us with valuable feedback.

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Keywords: *Competences, information literacy, media literacy*

ICT Accessibility: The Challenge to Improve Information Literacy for University Students with Disabilities

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The MultiChancePoliTeam (MCPT) is a group of specialists that provides services to students with disabilities at Politecnico di Milano. The complexity of the social context where students study, teach, work, cooperate, communicate, and research makes the MCPT a special observatory for monitoring learning difficulties and disorders; during its history, one of the most serious problem MCPT reported was the "information literacy gap".

Disabilities limit students' information literacy in many ways. Deaf students often catch a little portion of the available information, and their information literacy is usually limited to textual and visual information. Students with visual disabilities can't access written information and their information literacy strongly depends on the availability of accessible -Braille or audio- books. Finally, information literacy of DSA students is negatively affected by the amount of time they need to read and understand texts.

ICT can help students to overcome the gaps, but if, on the one hand, personalized solutions are required, on the other hand systemic actions should be provided in order to simplify such personalization. For that reason, MCPT is also a laboratory committed to find innovative hardware/software solutions and new standards (Sbattella, 2011).

In particular, students with visual disability (blindness or low vision) need tools that permit them to access information: screen readers, video/screen magnifiers. Students with hearing problems need to access information, too; we provide them with audio recorders and Automatic Speech Recognition (ASR) systems for audio transcription; we are also experimenting a tool for facilitating lip-reading (Sbattella, 2012). Students with DSA need solutions that allow them to read faster and to extract and manipulate information; we provide them with LDA-tailored screen readers, smart pens with audio recording, ASR systems, and mental map editors; we are also experimenting a tool for automatic summary/mental map generation; finally, we plan to experiment an advanced spelling correction/prediction tool (Quattrini Li, 2013).

Such solutions work well, provided that information can be extracted from documents; we found four "accessibility levels": Image files containing scanned text (the worst level; users need an OCR to extract the text); generic PDF (where text could or could not be extracted, depending on the software used to generate the file); PDF optimized for accessibility (where text can be extracted, and accessibility features are present); EPUB (the best level, where pages can adapt to different displays, modifying the layout and reflowing the text).

MCPT is also committed to improve political actions at the national level and to define guidelines and protocols according to the most recent standards released by international bodies (WIPO, 2013). For that reason, we work tightly with regional and national university committees related to disability, like CALD (Coordinamento Atenei Lombardi per la Disabilità) and CNUDD (Conferenza Nazionale Universitaria Delegati per la Disabilità).

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Keywords: *DSA, visual disability, PDF, EPUB, accessibility*

Pecha Kuchas

The Use of Open Educational Resources to Update our Information Literacy Skills Package (SMILE) at Glasgow Caledonian University

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This paper discusses the update of SMILE (Study Methods and Information Literacy Exemplars) using Open Educational Resources, focusing on how we discovered and selected content.

Glasgow Caledonian University (GCU) has 17.000 students in multiple locations. SMILE is one of a range of support services provided by the Library and Learning Development Centres. It is a blended learning package which teaches information literacy and communication skills. SMILE is a multimedia package which was originally created as a JISC (Joint Information Systems Committee) project by Imperial College, Loughborough and Worcester Universities. GCU Library uses it to support our information literacy training sessions for home and distance learners.

After revising the content of SMILE to reflect GCU resources and ensuring that the wording was plain English, we mapped SMILE against the National Information Literacy Framework Scotland (NILF, 2011), GCU's 21st Century Graduate Attributes, the CBI (Confederation of British Industry) Graduate Attributes (CBI, 2011) and those in the British Psychological Society's The Future of Undergraduate Psychology in the United Kingdom report (BPS, 2012). This fed in to our subsequent development plan. We also decided to use Google Forms to add feedback sections to all units.

SMILE was then promoted to lecturers using one to one meetings which produced suggestions for further development. As the development team is small, it was more cost effective to use OERs as the basis to achieve this.

Our search methodology started with a scan of Jorum (the main UK repository of open educational resources). If we found nothing relevant, then we expanded the search using Google advanced search with a license filter.

Using OERs is not straightforward: formats may have to be changed to fit your existing templates and design, some sections may have to be rewritten in plain English, and non-Scottish resources may have to be changed to fit in with your educational system. Resources may have to be combined to get the coverage you want. Some OERs may be tied to a particular file format (such as PDF or Flash) or presentation system (like Xerte or Collaborate). Most quizzes cannot be copied directly into a web page, so new ways of presenting content may have to be developed.

Of 24 new units (not counting two links to other GCU sites), 7 OERs came from Scotland, 12 from England, 2 from Wales, 9 from the USA and 1 from Canada. Some units were compiled from more than one source. Four were written in house, so have been counted as Scottish.

Why did it split this way? Our search methodology of searching Jorum first, meant that UK-produced items were considered first. The wider Google advanced search produced more international resources which may take some time to assess and adapt.

I have found that OERs have been a useful way to provide content in new subject areas to match the university's needs in a timely and cost effective manner.

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Keywords: *Open educational resources, SMILE, blended learning, information literacy training, distance learning*

Relation Between Information Literacy Level and Academic Life: A Case Study

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Purpose

The purpose of this paper is to survey the relationship between the information literacy level of LIS undergraduate students and Academic life. This study reports the results of a survey of library and Information Science students of Zabol University.

Design, Methodology and Approach

In the first phase, required data was gathered by Davarpanah and Siamak (DAS), based on the designed questionnaire base of Information Literacy Competency Standards for Higher Education, ACRL. In the second phase of the study, the information literacy of freshman and senior bachelor students of University of Zabol in 2008-9 year was assessed by using the questionnaire. The statistical population included 20 freshman students and 20 senior students.

Findings

The results indicate that the literacy level of the first year and undergraduate students was below average. Information literacy levels among freshman students at the University ranged from high to low (in that order) for the following ACRL Standards: 2, 4, 3, 1 and 5. Among senior students at Zabol University, information literacy levels ranged from high to low (in that order) for the following ACRL Standards: 2, 1, 3, 4 and 5. The samples had the lowest scores in Standard 5. There is no significant difference between basic information literacy levels of the freshman and senior students. There is only a significant difference between basic information literacy levels of freshman students and senior students of the University in the 1st and 2nd standards. The information literacy level of the University's senior students' for the 1st and 2nd standards is higher than for its freshman students. The level of basic and factual information literacy competency also differed for the first year and undergraduate students, with the undergraduates having a higher level.

Results

Academic educational programs of the university, whether formal or informal, directly influence the literacy level of students. Each subsequent academic year in the university increased the information literacy level of the students to 3 points of the total score for the questionnaire. Considering the results of the present and past surveys, it was established that formal or informal academic educational programs of the university improves the information literacy level of students by three grades per year.

Originality and Value

This paper contributes to the knowledge base regarding information literacy, through use of the ACRL Standards for assessment. Although other information literacy rubrics exist, there is a shortage of publications that report the results of their application to student academic work.

Keywords: *Information literacy competency, freshmen, undergraduate students, library and information science, information literacy assessment, ACRL, Davarpanah and Siamak's information literacy questionnaire*

Exploring Pathways to Political Information: Librarians Facilitating Civic Engagement in a Diverse California Community

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This is an era in which political information may be delivered across various forms of multimedia, (i.e. print, internet, YouTube, Twitter, and Facebook). How can librarians help the community navigate this plethora of political information? In the United States of America the right to participate in our civic society's discourse is paramount to reaping the benefits of a healthy democracy. Access to political information helps community members to view how their representative/government officials will act on economic, and social concerns.

As librarians, we specialize in selecting and organizing information while providing access to all types of multimedia. We instruct users on how to evaluate and efficiently use information to meet their research and personal enrichment needs. As a result, we help users develop information literacy skills. In the article, "In Pursuit of Information," according to Rettig (2008) "information literacy intersects with civic literacy." Milner (2002) defined civic literacy as "knowledge and the ability of citizens to make sense of their world to act as competent citizens." Librarians have a critical role to ensure that information literacy skills translate into the community's ability to acquire and understand the political knowledge that impacts their lives.

In our academic library, librarians create finding aids, subject guides, and links to candidate/political sites. In addition, we provide instruction services designed to help users locate and evaluate political resources. In addition, in some cases, neutral public forums for diverse groups to discuss social, political, and economic issues have been implemented. We network with local advocacy grassroots community groups to market the library's political information resources.

In 2010, a team of librarians started a project to focus on a crucial and elusive literature – that of electoral campaigns geared toward the local multicultural communities. From our research, at that time, we found that California was only mandated to collect ballot measures, campaign finance information, candidate data, and election results. An initial assessment of the available political information such as election flyers, websites, and social networks that had been collected and preserved was limited in scope. Our goal was to explore tools that would provide sustained access to political information in its various forms such as traditional archiving, digitization, and web archiving.

Our PechaKucha will focus on the progression of our research and investigations of civic literacy and civic engagement in our local community. It will include examples and images of methods that librarians can use to provide some pathways to political information in all types of libraries. As librarians, our goal is to ensure that the community members understand and have knowledge of past and present issues expressed by their political representatives. We want to promote the knowledge needed for members to fully engage in the civic process. Rettig (2008) stated that, "elections come and go, but issues abide, as do our roles to promote information literacy and civic literacy."

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Keywords: *Civic engagement, political knowledge, civic literacy, information literacy, diversity, California*

Information Seeking and Use among Museum Professionals

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Museum professionals work with a variety of information resources. How do museum professionals view, define or evaluate information? Knowledge about the information needs and information seeking behavior of museum professionals could play a vital role in fulfilling their information needs effectively. The purpose of this study is to investigate the information usage and information seeking behavior of museum professionals in the Klang Valley, Malaysia. This study focuses on professionals who serve in various positions in the museum; curator of exhibitions, curator of collections, curator of education, development officers, and conservation officers. The population used for the study comprised only museum professionals who work at the National Museum and the Islamic Arts Museum Malaysia. The study used survey instruments which involved a questionnaire and interviews. The questionnaires were distributed to 95 respondents, museum professionals from the two museums. 75 (78.94%) of the respondents contributed to this survey. 5 volunteers participated with the interview. The purpose of the interview was to provide more in-depth information and support data found during the survey. The results indicated that multiple information resources were used by museum professionals: books, Internet, printed journals, newspapers, electronic journals, databases and personal collections. The results also showed that a majority of respondents chose books and Internet as their most preferred information sources 75 (100%). Museum professionals still prefer to use printed sources rather than electronic sources. The results of this study indicated that 40 (53.3%) of respondents showed a strong preference for printed sources, only 35 (46.7%) chose electronic sources as their preferred source. All of the interview participants chose printed sources. The survey found that a majority of the respondents said that "authority of the sources" 75 (100%) was the main reason for their preferences when evaluating information. The interviewed participants reiterated the same when asked how they evaluate information sources. The results showed that 45 (60.%) of respondents organize their information by photocopying relevant articles they found that were related to their work. However, 29 (38.67%) respondents preferred to scan and save a copy of the relevant information to the hard drive. The survey indicated that the majority of the respondents 61 (81.30%) faced common problems, such as unavailability of information or materials. In general, many were very dissatisfied with the unavailability of materials in the information center/library. 35 (46.67%) respondents spend between six and ten hours a week searching for information. 33.33% of respondents consult friends and experts for information. Most of the findings were consistent with earlier studies (Challener, 1999; Tibbo, 2003; Dalton & Charnigo, 2004; Marty, 2004; Anderson 2009; and Rhee, 2010). The results will assist information providers in planning of an effective instructional program that will lead to lower anxiety among museum professionals and enable them to overcome problems in fulfilling their information needs. It is hopeful that museum libraries will take note of the findings and strive towards fulfilling the information needs of museum professionals.

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Keywords: *Information seeking behavior, information needs, museum professionals, museum*

DRILL: Digital Reference and Information Literacy for Lifelong Learning, from Questions to Answers

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Purpose

The aim of this data-mining research is to verify whether analyzing the real information seeking behavior of users can be an effective method to discover the real information needs of users. Our goal was to know the information seeking behavior of users, to plan improvement actions of information literacy (IL), like the drafting of future guidelines.

This study reports on qualitative and quantitative research conducted in 2012, through the analysis of 2040 questions received by the centralized Digital Reference service (DR) "Chiedi-al-bibliotecario", managed by the University of Bologna.

Accustomed to financial constraints, our idea was the reuse of already owned data. The constraint has turned out to be a positive pulse, indeed, the analyzed questions were really asked by users, in a natural way, without being influenced by observation. The singularity of this study relies on the value of honesty and immediacy of these transactions, otherwise left unexplored.

Method

The DR was introduced by our University in 2007, thanks to the participation of 35 voluntary libraries. DR provides a service manager who evaluates and directs requests to several librarians who, after receiving requests from the manager, reply according to a predefined service standard. Users find a web form with the following mandatory fields to fill in: your e-mail, reason for your request, formulate your question.

The 2040 applications submitted to the service in the period January 1, 2007 - December 31, 2011 have been grouped in eight question types, then, both the questions and the participating libraries have been sorted into five macro subject areas in order to verify which area the users belong to.

Research Findings

According to the eight mentioned question types, these are the percentages: information on library services 24.5%; introductory bibliographic reference 15.8%; book location 18.8%; journals/articles location 12.4%; usage of catalogues, databases, electronic resources 10.1%; biographical and bibliographical checks, acronyms, terminology 3.0%; legal references 2.8%; additional information 12.5%.

According to the five disciplinary areas, these are the results: humanities (32%); social-sciences (27%); technical-sciences (6%); biosciences (12%); interdisciplinary (23%).

Over 50% of the questions could be solved with a basic knowledge of the local catalogue and these results indicate a marked difference in disciplinary area distribution: the user who seems to be most in need of training is the one belonging to the socio-humanistic areas.

Conclusion

IL instruction can improve and become less theoretical and much more effective thanks to these findings because they refer to authentic queries DR has actually recorded, the "real-life" of the users and not to an in-vitro questionnaire administered before or after their real needs.

We hope to trigger a beneficial process by pursuing the common goal of "meeting" the users' needs, through a shared, learning environment where the DR librarian and the IL librarian promote each other's basic services.

***Keywords**: Digital-reference, information-seeking, users-behavior*

Information Literacy and Service-Learning: Opportunities for Instruction

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Service-learning is a method of instruction which incorporates community service into the academic curriculum. One of the seminal writers in the field, Andrew Furco, states that service-learning programs are defined by "their intention to equally benefit the provider and the recipient of the service as well as to ensure equal focus on both the service being provided and the learning that is occurring" (1996, p. 5). This method is becoming increasingly popular at all educational levels, but especially in higher education. Service-learning as a pedagogy has much in common with information literacy instruction, including an emphasis on lifelong learning and critical thinking. Libraries and librarians have been proponents of the importance of information literacy to a well-rounded education for decades—as service-learning gains traction, it is important for librarians to become involved (Riddle, 2003). In this presentation I will provide an introduction to the history of service-learning, some of the key elements, and best practices for integration into information literacy instruction.

As service-learning becomes more widespread, many librarians are attempting to incorporate traditional information literacy instruction into these projects, or even developing new projects that integrate service-learning ideas. Some recent examples of collaborations include Wright State University's information literacy course which assisted a local non-profit organization (Barry, 2011) and embedded information literacy components in a service-learning course at Mississippi State University (Hall, 2012). As Nutefall states in an article on the relevance of service-learning to librarians, "Librarians can play a key role in creating civically engaged students by providing resources and instruction that allow students to explore local, national, and international issues" and "create higher visibility for information literacy on campus" (2011, p. 17). I, myself, was a co-teacher in a combined service-learning and information literacy course at the college level for several semesters, and found many ways in which information literacy instruction can complement service-learning, and vice versa (Datig & Ruswick, 2012).

Information literacy and service-learning instructors both encourage, and even require, students to see their learning as something that has effects outside the classroom. Information literacy instructors encourage the idea of lifelong learning; service-learning teachers encourage students to use their education to improve the world and become better citizens. In many ways, the partnership between these two areas of instruction is a natural one. In this presentation I will pull together the multiple approaches that can be taken towards this collaboration. In addition to the history of service-learning this presentation will cover common strategies for integrating service-learning and information literacy, the goals of such projects, the power they have to engage and inspire students, and methods of assessment. The audience will gain a broad overview of service-learning as a pedagogical tool and also be exposed to different methods of integrating service-learning into their information literacy instruction.

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Keywords: *Information literacy, service-learning, lifelong learning, higher education*

To Watch or to Click: A Usability Study on the Effectiveness of a Library Tutorial Created in SMART versus a Tutorial Created in InDesign

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This PechaKucha presentation will discuss a usability study currently in progress and make recommendations to conference attendees on fresh developments and innovations in online tutorials. The study portion will be completed by the date of the European Conference on Information Literacy and the preliminary results included in the PechaKucha presentation. This study was inspired by rapid changes and updates in technology and the necessity of exploring the most effective methods of presenting virtual, online instruction. The Library Instruction and Information Literacy (LIIL) Section of a research library at a large, private university has relied for many years on video-based tutorials to provide undergraduate students, generally juniors and seniors, with instruction in preparation for their required, in-person library sessions for their "Advanced Writing" composition courses. The Advanced Writing course is a general education requirement for all upperclassmen. This study explores whether video-based tutorials are still the most effective method of virtual, online instruction or if another medium would be more efficacious. In collaboration with LIIL's "iLearning" unit, a tutorial was created using the desktop publishing software InDesign. The InDesign tutorial contained the same information as the previous video-based tutorial created in SMART. This study compares students' use, reaction to, and comprehension of information using the SMART tutorial and the InDesign tutorial. In cooperation with the university's Usability Lab, students enrolled in the required Advanced Writing composition course are observed using the SMART tutorial or the InDesign tutorial to discover information in order to complete a 16-question quiz. These students are juniors and seniors and have previously completed a library component during their first-year writing course as freshmen. During the usability study, students speak out loud describing their experiences using the tutorials; their mouse clicks and movements are also tracked. Students are then debriefed following the usability study. Based on the students' feedback, their answers on the quiz, and their movements on the computer, LIIL will evaluate whether the video-based tutorial or the desktop publishing-based tutorial is the most effective method for delivering virtual information to the students. The study will also discover the fail-points in both methods of delivery. The PechaKucha presentation will make recommendations for online delivery based on the results of this study and focus solely on the usability of the two types of tutorials.

Keywords: *Tutorial, usability, university students, SMART, InDesign*

Get off Your Soapbox: Engaging Students in Large Lectures

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How can you add interactivity to library instruction in a large lecture setting? This pecha kucha aimed at instruction librarians will demonstrate how to use the online tool GoSoapBox (www.gosoapbox.com). GoSoapBox is a web-based audience response system designed for teachers. Features include quizzes, polls, a discussion area, and more.

GoSoapBox allows students to respond to and ask questions throughout the class period using a computer or mobile device. A librarian can set up an "event" and then enable and populate various features. Students can access the site using a given "event code." The quiz, polling, and discussion features allow for nonthreatening instant assessment of class knowledge at various stages of the lecture. This feedback allows librarians to better tailor the session to student needs. Also, the confusion barometer can help identify areas that are unclear or that the librarian needs to spend more time on. The "social question and answer" feature is a place for student-generated questions that the librarian can check throughout the class. Students can also "vote" on questions that they like, and the most popular questions rise to the top of the list.

GoSoapBox helps facilitate classroom engagement and discussion, which can be notoriously difficult to garner in the standard "one-shot" library instruction session held in a lecture setting with no hands-on capabilities. As long as students have access to a mobile device, they can actively participate while still maintaining their anonymity. Formative assessment can be done in the form of pre, post, or on-the-fly activities as students are polled or quizzed on various topics. Since each student has been forced to invest in an answer or give input, they have more of a stake in the instruction. Making students explain why they chose a certain answer or posted a certain comment is easier and facilitates peer learning while providing the instructor with invaluable insight into how students think. Also, the technology can aid in the facilitation of group work by providing an outlet for students to report back to the larger group.

This pecha kucha will provide a demonstration of how to set up a GoSoapBox event and allow the audience to experience it from a participant's perspective. The session will also offer examples of innovative ways to use this technology to facilitate increased classroom engagement in the learning of key information literacy skills. The equipment requirements for this session are an instructor station with projection capabilities.

Keywords: *Active learning, student response systems, educational technology*

Social Media Skills as a Requirement for Information Literacy - An Empirical Investigation of Secondary School Students

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Digital natives are strongly involved in the challenge of using Social Media in their everyday lives. Our present study examines the use of Social Media of children and teenagers as part of their information literacy. It focuses on the differences between students of class 6 and class 11 at German schools and points out how they use Social Media.

Methods

The case study is based on a survey which was administered at two German schools. This survey was conducted using a paper-based questionnaire. The investigators were always on site during the completion of the questionnaires, so questions that arose could be answered immediately. In total, 211 students in class 6 and 254 in class 11 were questioned. The response rate was almost 100%.

Results

In terms of evaluating an online situation, older students perform better than younger students. They are more able to judge critical situations before making a decision. Nevertheless there are deficits in information literacy in both age groups. It is obvious that the usage of Social Media services increases at a higher age and is more strongly integrated into everyday life.

The most frequently used services beside social networks are YouTube and Wikipedia. It is apparent that Wikipedia, in particular, is just used passively. Only 5% of the participants stated that they actively write or correct articles. Students in class 11 seem to be more active in using blogging and micro blogging services. But even here the activity is mainly passive. This is also reflected in the fact that about 50% of all students do not know about the existence of tags. Only a few participants know and also use tags for indexing content on Social Media platforms.

Discussion

The results show that teachers and parents should train students in evaluating critically Social Media services, to give them an understanding of crucial aspects like data protection and privacy. It is also apparent that information literacy instruction should not only consider static, but also dynamic information, like the kind that appears in Social Media services.

Keywords: *Information literacy, social media, students, web 2.0, media usage*

A School Librarian in the Educational System of Croatia

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This paper delineates the abilities of school librarians in an interdisciplinary dimension regarding information literacy for children and young people. How should school librarians include information literacy programmes in their work? The school library has an important role in preparing young people for lifelong learning. Information literacy as a term is defined by levels of ability in these areas: comprehensive reading, writing skills, e-Learning, information seeking and information behavior, the knowledge of foreign languages, the use of information technology, research methods and techniques and problem solving skills. School librarians with specialized knowledge guide young people through knowledge organizing systems. This paper offers an important answer to the question of why teacher education about information literacy should depend on their personal competencies.

The research goal is to introduce self-evaluation in the school system through realistic and clearly defined methodological self-evaluation of their work, to more effectively identify their development needs, and therefore, take action to improve their own practice. The analysis of the Web research conducted in 2012, with the participation of 700 school librarians in both elementary and secondary schools, gives more precise information regarding the topic. The results demonstrate the existing qualitative references for Croatian school libraries and provide useful guidelines for improving their current level. The self-evaluation of school librarians affects the valuation of the profession in the educational system.

Through five categories grouped into five sets of questions the answers given relate to:

- Professional profile of school librarians in the system
- Professional development and acquisition of competencies
- Technological and information literacy
- Indicators of school library standards
- Teacher coordination and information literacy in an interdisciplinary context

Some of the results show that the strategy for the development of personal competencies is evaluated through non-formal education. One of these competencies is information literacy. One of the areas that need to be improved for the qualitative shift in school librarianship relates to information, communication and social skills. What they emphasize as important for the recognition of their profession is the individual contribution to its quality and the profession's clear definition.

The existing educational coordination and interdisciplinary dimension of information literacy should not depend on personal competencies; instead it should be clearly stated in legislative acts related to education. The existence of school libraries depends on educated and competent school librarians.

Keywords: *Information literacy, school librarian, competencies, education, self evaluation*

Towards a Refined Information Literacy Model

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Pilerot and Lindberg (2011) classified IL texts into three areas, namely Professional Practice, Policy-Making, and Research. This paper reports on an effort in assisting in policy making and professional practice. In Singapore, some efforts have been made through various government agencies to investigate and improve skills of students. Examples include NLB's (National Library Board) 5-year National Information Literacy Program (NILP) since 2012, which includes plans to assist Ministry of Education (MOE) to improve students' IL competencies through the provision of supplementary IL related resources. The purpose of this on-going project is to develop a refined model covering various IL stages, collaborative information seeking, as well as social responsibility and desirable attitudes that would facilitate an individual to become an information literate person. The review of existing IL models revealed that the majority are based on the research/information seeking process, perspectives, or components. On the other hand, the affective and cognitive domain in information literacy was acknowledged, and a relational approach towards information literacy has been constructed. In recent years, recognition of individual actions, behaviour, thoughts and skills in information literacy has been extended to teams, groups and organizations, and, with the proliferation of web technologies, information literacy has extended its reach to focus on social and multimodal networked technological environments, and may be redefined as meta-literacy or meta-competency (Kearns, 2001; Lloyd, 2003; Mackey & Jacobson, 2010). Other authors have also advocated fostering IL use and learning by accommodating cultural, linguistic and educational differences (Hughes, Bruce & Edwards, 2007). Considering the unique multi-ethnic and multi-cultural setting of Singapore, there is a need to develop a comprehensive IL model which not only elaborates IL activities and corresponding competencies along a research process at both individual and group levels, but also integrates other components of IL such as attitudes and social responsibility. This paper will provide a detailed elaboration of the proposed model which is essentially made up of 5 stages: Defining the information task; Selecting information sources; Seeking and evaluating information from sources; Synthesizing and using information; and Appraising the information process and product. What makes this model more suitable and ready for implementation is that all stages are scaffolded into Definition, Scope, Outcome, Activities, Optional Activities, Concepts and Tools, with some further illustrated by a set of descriptors. As part of future work, based on the proposed IL model and international benchmarks, the authors are also developing a curriculum framework of expected levels of IL competencies and related values for the whole spectrum of education, ranging from primary to pre-tertiary level, which can be used as guidelines for teaching and imparting IL competencies to Singapore students. The Authors are also conducting a bibliographic study to identify the most prolific authors in IL research around the world with the intention of seeking input from these IL experts on the proposed model.

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Keywords: *Information literacy, model, collaborative information seeking, social responsibility*

Online Course of Information Literacy at Masaryk University

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This paper describes the Course of Information Literacy, a fully e-learning course, which is taught at Masaryk University in Brno, Czech Republic. The aim of the paper is to describe the online environment and online instruction of the course. The course has been developed and taught by members of the Information Literacy Centre (CEINVE), at the Faculty of Arts. The Course of Information Literacy is accessible to all university students regardless of their subject specialization and their study level. The course focuses mainly on information processing in professional writing.

Since its start-up in 2007, the course was open for the first time to a greater number of students in the autumn of 2012. The course was limited to 2000 students. It started successfully with more than 1700 registered students from all faculties of Masaryk University. This fully e-learning course is taught in the Information System environment of Masaryk University. The use of Information System and its e-learning environment by such a significant number of students was a unique experience which brought many challenges and unexpected complications. The tutors´ team in cooperation with Information System technicians have managed to resolve them successfully.

The course has also brought new improvements, such as innovated and up-dated study materials reflecting the latest trends in information education. New, modern topics have been introduced, for example critical thinking, effective reading, critical sources evaluation, critical text interpretation, online publishing possibilities etc.

The course consists of 14 weekly modules, an introduction module, 12 study modules and a closing module. Each study module contains core study materials (available in PDF and two formats for EPUB and MOBI readers), other text and audio-visual materials, and summarizing infographics in the form of a mindmap. Each study module also contains written assignments and a marked knowledge-based test. Students fill in the tests directly in the information system. All the tests are accessible once only and are time-limited. After completing the test, students can see their results immediately.

As students submit written assignments weekly, the team of tutors had to provide comments for about 1800 assignments every week. Every student receives his or her assignment feedback with advice and recommendation for further work. Students submit their homework also directly to the information system, via discussion forums, where tutors can write their feedback. Other forms of education were presented to students, for example so called "Webinar", which was a part of the final module.

Permanent support was an important feature of the whole course, provided by the course guarantor as well as by other tutors online via discussion forums, emails and Skype consultations.

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Keywords: *E-learning, information literacy, information education, critical thinking, online learning, online courses, tertiary education*

Content Analysis of Iranian Primary School Science Books According to Big 6 Information Problem-Solving Skills

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With the rapid growth of information in recent decades, many people and even school students are facing information overload nowadays; so this has led teachers in schools to focus on teaching students how to search, find and use information effectively. With regard to technological changes, teaching information literacy skills has become a necessity in many schools. In some countries, including Iran, the school education system is text-based, and textbooks play a vital role in evaluating students. In this regard, science, among various subjects, has particular importance in primary schools education, and has the ability to transfer information problem-solving skills and research concepts to students. Present research aims to investigate to what extent Iranian primary school science books match the Big 6 Skills. Big 6 Information Problem-Solving Skills developed by Eisenberg and Berkowitz is one of the most used models in evaluating and teaching information literacy skills to K-12 students. In Eisenberg's and Berkowitz' view, successful information problem-solving encompasses 6 stages, namely: Task Definition, Information-Seeking Strategies, Location and Access, Use of Information, Synthesis, Evaluation.

This study uses a qualitative content analysis method and the content of science textbooks of Iranian primary schools. The study offers an analysis based on the Big 6 Information Problem- Solving Skills which encompasses 6 stages. by using a checklist and a list of stages table. As in recent years, the Iranian Ministry of Education has begun large scale changes in textbook content, educational curriculum, and teaching methods; so the last edited version (2012) of 4th and 5th grade science textbooks of Iranian primary school were selected for content analysis. Primary results show that the content of analyzed books are less consistent with big 6 model especially in the second, (Information-Seeking Strategies), fifth (Synthesis) and sixth (Evaluation) stages of the model.

Keywords: *Big 6 Skills, information problem solving skills, information literacy, Iranian primary school textbooks, content analysis*

Exploring Assessment-Based Pedagogies for Helping Students Learn Information Literacy Skills

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Introduction

In spring 2012, librarians at the Moore Library of Rider University collaborated with teaching faculty to engage students in learning information literacy (IL) skills using three different strategies. The goal was to discover which teaching strategies were most effective in delivering IL for single-session IL instruction.

Few studies provide evidence of student IL learning in relation to teaching methods. The few that examined the correlation are IL-integrated credit courses using blended methods. Mery, Newby and Peng (2012) evaluated online and F2F teaching. Ilic, Tepper and Misso's study in 2012 is a rare example that assessed student learning outcomes for the single-session and described the instruction method. No other studies were found in the literature that use similar instruction approaches to this current research.

Methods

The authors used three experimental groups, each employing a different teaching method. In the Preview group, faculty assigned students to preview the Research Guides prepared for these classes and gave students a graded quiz before or immediately after receiving library instruction. In the Active-learning group, the librarian and faculty engaged students with an active learning component consisting of a worksheet during the session. The Multi-sessions group received two instruction sessions on different assignments from two librarians co-teaching the sessions. Multiple follow-up sessions followed each instruction session to allow ample time for students to practice searching.

A different pretest and posttest were used for measuring student learning outcomes. Each test contained 10 multiple choice questions with multi-correct answers. The authors expected that the Preview group would perform better because of the incentive given by the quiz and by being better prepared from previewing the IL content.

Results

No statistical differences were found among the groups and neither were differences found between the pretest and posttest in each group. The authors will discuss the specific IL concepts students learned and did not learn from the analysis. For example, participants performed significantly better at identifying sources (first objective) than they were at searching effectively (second objective) in the pretest, but the posttest showed the opposite results.

Conclusions

Students' gains from one or two IL sessions were very limited despite the great efforts in engaging them using these different methods. As suggested by some researchers, including Burkhardt (2007), IL skills are too complicated for students to learn and retain in the single-session model. More strategies need to be explored in order to teach IL skills effectively, including creating an IL-credit bearing course.

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Keywords: *Information literacy, assessment, library instruction, pedagogies, college students*

Information Literacy or Google?

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Introduction / Context / Background

Augmenting and updating everyone's information literacy is a target in many environments. Information literacy includes searching and finding relevant information, when an information need arises. Since the 1990s, information has become available on the Internet and WWW in a way that is more user-friendly, faster and cheaper than before. Most information professionals agree that people / users

- need a broader and deeper understanding of the information landscape than the superficial, simplistic and limited view that is created by the popular WWW search engines;
- should be provided access to information sources and discovery services, which offer a wider coverage than the freely accessible WWW and its common search engines.

However, this view is continually assessed and criticized by managers who have to see to it that available funds are spent efficiently. Furthermore, we see a growth in the content of the WWW and in the coverage and power of the popular WWW search engines that can be used easily and free of charge, including Google.

Problem Statement

Is raising the level of information literacy in the field of searching and finding information still needed, in view of the evolution?

Findings

Popular search engines, including Google, are growing qualitatively as well as quantitatively:

- Google Scholar can still be used free of charge and has evolved into a retrieval system that is now comparable to the large, well-known and more expensive commercially available search engines for scientific information.
- Google Image Search allows a user to formulate a query that consists of text to find images and thus also to find each document that contains each found image.
- Since 2011, Google even offers search by image, which means that the user can formulate a query that consists mainly of an image, in order to find similar images and thus also those WWW pages that contain these images.
- The personalization of large and popular search engines like Google is getting more powerful and important. One effect is that search results can even better meet the expectations of the individual user.
- The popular, classic Google Web search started as a system to search individual pages in HTML format on the WWW that was still relatively small. Now the system can also search through files in other formats. Furthermore my investigation indicates that the search engine can even find information in many databases that are connected with the Web. In other words Google allows one, at least partly, to find information available in the collection of resources that formed the “hidden, invisible Web”. Up until recently, exploiting these resources required a high level of information literacy.

Conclusion

Augmenting information literacy in the domain of information discovery is still desirable, but ‘return on investment’ is shrinking.

Keywords: *Information literacy, information retrieval, information searching, information discovery, Google*

Media and Information Literacy of Managers: Chelyabinsk Experience

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Improving the Media and Information Literacy of managers is an urgent educational task because future leaders of material and non-material production will determine the dynamics of the Information Society in this country. On this basis, the largest universities of the Chelyabinsk region (Chelyabinsk State University and South Ural State University) started to include media education components to manager curriculum. It is a course "Fundamentals of Media Competency", which is taught as an experiment at the Faculty of Management (CSU) and at the Department of "Economy and Management Service", Service and Tourism Faculty (SUSU). The course was developed by the authors and is intended for administration to 1-2 university courses. This is an integrated course, while the media – in different contexts, considering their diversity and specific nature – have been studied by such distinctly separate disciplines as history of media and journalism, press studies, literary theory, film studies, radio studies, cultural studies, communicology, sociology of mass communication, media economics, advertising studies, television studies, propaganda studies, media psychology, sociology of the Internet and others. This course consists of two parts: general specific (managerial). Themes in the general part are "Introduction", "Social and political aspects of mass media existence", "Types of mass communication activities", "Economic aspects of mass media existence", "System of mass media: past and present", "The science of mass media" and "Media systems of Chelyabinsk region". Specific (managerial) part is called "Media and Managers". It is about media manager activities and business print and electronic media as the main source of relevant mass information for managers. In this section we refer to such media as the newspapers "Kommersant" and "Vedomosti", the magazines "Expert", "Business district", RBC- TV, Expert-TV, radio KommersantFM, BusinessFM and others. The effectiveness of the course in terms of raising the level of MIL has been checked us by test form. The experimental results showed that our course "Fundamentals of Media Competency" is able to positively influence the media preferences of students, the frequency of calls to media students, motivation for treatment by the media and other indicators of Media and Information Literacy. In addition, the level of student orientation in the current system of media, as well as their media knowledge and media skills improved significantly. The positive results of the experiments we conducted were approved by the authorities of Chelyabinsk State University and South Ural State University. The experimental results allow us to recommend the method of objective media education and the course "Fundamentals of Media Literacy" for widespread using at Russian universities. We absolutely agree with the President of the Russian Association of Film and Media Education Alexander Fedorov (2008), who said: "I have no doubt that all universities need Media Literacy courses, and Media Education must become part and parcel of the curriculum".

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Keywords: *Media Literacy, competency, curriculum, course*

Face-to-Face Training of Information Literacy at Masaryk University

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The main aim of this PechaKucha talk is to highlight the importance and necessity of implementing face-to-face workshops to accompany e-learning courses as a unique part of the higher education process, focused on information education at Masaryk University in Brno. The format of face-to-face workshops fortifies transfer of knowledge to skills and attitudes much better then e-learning itself and has a bigger influence on the consolidation of skills and attitudes toward information literacy. The workshops are part of unique fully e-learning courses for all students at MU in Brno: Creative Work with Information. The workshops provide practical information describing specific techniques which assist in the development of divergent thinking, encourage creative approaches to doing assigned tasks and solving problem situations creatively. The professional lecturers completed an international certified course in critical thinking (Reading and Writing for Critical Thinking). The crucial part of this program – the three-phase model of the educational process – is purposefully applied by the lecturers at the workshops.

The course Creative Work with Information is fully provided as blended learning, which means that students can choose between attending a workshop and doing a classical homework at the end of each study module. There are 14 modules available via e-learning, so the topics of the workshops are related to the topics of the e-learning course. The workshops take one hour. The crucial goal of each workshop is to teach students how to use the creative techniques mentioned in e-learning theoretical modules in their study and personal lives. In order to increase active forms of lessons the workshops are held in small study groups (max. 15 students per lesson).

The topics practiced at the workshops are as follows: Thinking and Time management, Creativity, Associations, Brainstorming, Mindmaps, (Six) Thinking Hats, Visual Thinking, Infographics, Media literacy, Social networks, Active reading, Speed (turbo) reading, Creative writing, Storytelling, Learning techniques, Memory techniques, Verbal communication, Argumentation, Wikipedia, How to ask and listen, and Conclusion.

The integrating idea of the workshops has its roots in the three-phase model of the educational process. This model tries to encourage students' critical thinking ability as an important form of lifelong learning. There is really good feedback from students who passed the workshops. The feedback is the result of continual measuring e-learning efficiency. Attendees appreciate the opportunity to try out theoretical knowledge from the e-learning course in practice.

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Keywords: *Information literacy, information education, critical thinking, educational methods, the three-phase model of the educational process*

Information Literacy (IL) Skills among the Female Students of Rural Secondary Schools of Dhaka District, Bangladesh

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Information Literacy (IL) is relatively a new concept in Bangladesh. However, progress in promoting IL is being made. Some universities have started training-workshop programs on IL and include them in their syllabuses. As an awareness campaign, Centre for Information Studies, Bangladesh (CIS, B) and United Nations Information Center (UNIC)-Dhaka are jointly conducting training programs on IL for rural secondary schools in Bangladesh (The Daily Ittefaq, 2010). The National Education Policy-2010 of Bangladesh has recognized the importance of lifelong learning (Bangladesh, 2010). So, time has come to integrate IL courses into the schools, colleges and universities of Bangladesh. No programs for improving information capabilities can be conceived until an objective investigation is conducted about the level of IL skills among Bangladeshi school students. Experts believe, and the literature shows that IL programs should be started in rural and urban schools, but rural schools should be given priority as their need is more urgent (Hoq, 2006). The objectives of this study were to learn the patterns of library use and other supplementary sources by the students; their approaches to using ICT sources; to develop a course module on IL training for the secondary school students, and develop suggestions for implementing IL program in Bangladesh. This was an empirical study which used surveys supported by observations and interviews. Girls' enrollment in secondary schools of Bangladesh rose 67 percent over a 17 year period. Female enrollment, as a percentage of total enrollment, increased from 33 percent in 1991 to 48 percent in 1997, and close to 55 percent in 2008 overall (World Bank, 2011). Because of these significant changes in enrollments, it was decided to conduct the research on female students. Moreover, another study measured the IL skills both male and female (Islam & Ahmed, 2011). Female students in class-X of Savar and Karanigonj sub-districts under Dhaka served as the sample population and 200 students were drawn for the study as the participants. A close-ended questionnaire was designed and personally administered. The study revealed that only 48.8% students identified their textbooks as the sources of information. Though 41% students have some knowledge of libraries, 77% students have no idea about the library catalogue. Sixty six percent of the students did not think of radio, television and newspapers as sources. Moreover, 63% students failed to identify reference materials. When asked about ICT as sources, 65% answered incorrect options. Moreover, Bangladesh is envisioning a Digital Bangladesh Plan by 2021. But 61% students had no idea about Digital Bangladesh. A training module also has been developed for the IL programs. The study provides analysis of the prevailing situation that helps in planning for policy makers to integrate IL courses into the mainstream of the secondary school education system. Studies showed that the role of teachers and librarians in the school is critical. If the teachers are convinced about the significance of IL, they may become willing partners in this process (Rehman & Alfaresi, 2009). Further in-depth research is needed to back these marginally significant findings. There is a need for a program to raise mass awareness about IL in Bangladesh.

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Keywords: *Information literacy, skills, secondary school, female students, Bangladesh*

Assessing Information Needs and Seeking Strategies of Faculty and Researchers of University of Dhaka, Bangladesh

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Information needs and information seeking strategies are two areas that generate considerable interest among the information professionals. It is felt that the information needs of the users can be properly identified and the behavioral pattern of their information seeking endeavor can be pin-pointed. This study defines information needs as an awareness or recognition of not knowing, or the existence of uncertainty in the personal or work-related life of an individual (Laloo, 2002; Chandel**,** Saraf & Islam, 2011). Information seeking strategies include four dimensions: information needs, information sources, information channels and information barriers (Wilson**,** 1996; 1999). The objectives of the study are to assess the information needs and seeking strategies of faculty and researchers of university of Dhaka; to determine factors influencing information needs and seeking strategies; to discover the existing patterns of information needs and seeking strategies, and recognize the problems and prospects of rendering generalized and advanced information services to them. As Information Literacy (IL) is the ability to locate and use information effectively, thus information seeking strategies are a component of IL. No studies of this nature in Bangladesh were found in the literature. (Begum, 2011). The population included all the faculty and researchers working in the Dhaka University and considered as a unit. The questionnaire included 123 items covering five sections including ICT facilities (Weingart & Anderson, 2000; Bharali, 2000, Begum, 2011). For analyzing data, factor analysis, inter co-relation and Analysis of Variance (ANOVA) were used. Results showed that the variables of information needs of the faculty and researchers are highly correlated, signifying their importance. This reveals that they need information about new topics, new methods and new approaches. For information sources, variables are highly correlated indicating their significance. Regarding information channels, variables are significantly correlated. Information barriers indicate that the faculty and researchers did not have access to adequate library facilities, and were further impacted by unfavorable attitudes of library staffs. Background variables of faculty and researches do influence the information needs and information sources. This paper investigates a wide spectrum of related concerns exploring information needs, channels, sources and barriers. The overall aim is to strengthen the capacity of both the faculty and researchers of the University of Dhaka and the information providing agencies, so that a more favorable atmosphere could be created which ensures effective utilization of information for the academic improvement of the faculty and researchers. The findings of the study indicate that, while the major aim of the information pursuit of the faculty and researchers is research, they do face significant challenges in finding their desired information, most important of which being the lack of an adequate number of abstracting journals and scattered information. It also reveals that they are mostly dependant on formal information channels like the library rather than informal channels for their desired information. As Dhaka University Library is facing problems, the study recommends DULNET (Dhaka University Library Network) with its features, organizational chart, etc.

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Keywords: *Information needs, seeking strategies, faculty and researcher, information literacy, University of Dhaka, Bangladesh*

Information Literacy Competencies of University Students in Science and Technology for Solving Research and Development Problems

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Despite the integration of information literacy (IL) standards into higher education, students are often developing IL skills superficially, without the ability to use them in solving authentic problems in their academic fields of study and research. When not applied in real-life study and research situations, IL competencies and skills may not enable higher cognitive levels - such as the use of knowledge, analysis, synthesis and evaluation - that are necessary to solve problems in the face of multi-disciplinary challenges.

In an effort to deepen and expand IL skills beyond a general perspective, a methodological model was developed that integrates IL competency standards with solving study and research problems in science and technology. An example from a postgraduate study of scientific and technical informatics is given, that combines heuristic and mathematical-statistical information methods with experimental laboratory work. Presented in a case study of microencapsulation technology, the research and development (R & D) process consists of ten steps: (1) definition of the research field, with selection of the priority niche; (2) preparation of profiles for advanced search queries on professional information databases, for the acquisition of scientific literature and patents; (3) construction of an in-house information system to support R&D in chemical microencapsulation technologies; (4) analysis and synthesis of information from full text documents, to identify relationships between raw materials, process parameters and the final properties of microcapsules; (5) design and verification of selected microencapsulation processes in the laboratory; (6) identification of the relationships between the main process parameters and properties of microcapsules, to design a matrix; (7) development of a prediction QSPR (Quantitative Structure-Property Relationship) model to determine and predict the successfulness of microcapsule synthesis by *in situ* polymerization for new core materials; (8) laboratory microencapsulation of new materials, and transfer of optimized processes into semi-industrial reactors; (9) incorporation of microcapsules into new formulations and market products; (10) generalization of the methodology to support R & D activities in academic and industrial environments.

The outcomes of a case study were scientific and technological innovations, published several scientific articles and in a patent (Šumiga, Stepancic & Boh, 2012), as well as an industrial information system (Šumiga & Boh, 2010), and a generalised methodological approach for university education (Boh & Šumiga, 2011).

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Keywords: *Information literacy, university, students, science, chemistry, solving problems, methodological approach*

Making Transition Easy at the National and University Library in Zagreb

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At the end of 2011, the National and University Library in Zagreb (NUL) launched the project entitled *Uvod u svijet informacija* (Introduction into the world of information), focusing on students in the final years of secondary school. The launching of this project was prompted by the fact that over the last couple of years more and more students have been coming to the Library in search of resources and materials that they could use in the preparation of their secondary school graduation papers. We therefore found it appropriate to organize an education programme through which students would learn how to search for and access information, as well as to critically evaluate and subsequently apply them. Since it has long been recognized that information literacy lies at the very core of lifelong learning (ALA, 1989; Lau, 2006; Alexandria Proclamation, 2006), through this project, the Library reinforces its role, place and visibility in the processes associated with lifelong learning.

The education programme lasts for two school periods through which students get acquainted with services that the NUL provides for its users, both traditional and modern. After that they take part in practical work in the Library's electronic classroom, where they learn about methods of searching various information resources provided by the NUL.

Current research results show that during their transition from secondary to tertiary education, students experience considerable difficulties, the final consequence of which is that they abandon their studies. Conducting various information literacy programmes the Library contributes to a reduction in such undesirable effects caused by students' failure to adapt to the academic environment. By highlighting the importance of information in processes associated with research and emphasizing the significance of the ability to find, evaluate and properly apply information, the Library provides secondary school students with crucial insights into the protocols of the knowledge society. Since instruction on finding and using information includes other aspects of the production of information (those economic and legal) and knowledge organization, the purpose of this education programme is to develop a positive attitude of young people towards research, advocate high ethical standards in scientific activity, accurate referencing, etc. Encouraged by the available research results and survey findings, we have made it our objective to introduce information literacy into the regular curriculum of the final years of secondary school in the form of a one-day programme that students would have to attend at the Library.

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Keywords: *Transition, information literacy, education programmes for students, National and University Library in Zagreb*

Integrating Information Literacy in to Library and Information Science Curriculum in Nigerian Library Schools

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The 21st century has brought enormous changes in education, politics, economy, and social services throughout the world as a result of new technological and information literacy development. These changes affect every segment of society and all levels of education. New learning centres are evolving based on the concepts of resource-based teaching and lifelong learning. Students need high levels of information literacy in every phase of their education. School curriculum is undergoing major changes globally to meet the demands of the society in the 21st century. These necessitate the Library schools in Nigeria to update their curriculum to integrate information literacy programme in order to meet the challenges of the 21st century. Information literacy has been considered as "the ability to access, evaluate and use information from a variety of sources" The study was conducted in Five (5) Library schools in Northern Nigeria. Their undergraduate programmes were examined to find out the level of IL integration into their programmes. The Library schools examined were BUK, Kano, ABU Zaria, UMYU Katsina, ATBU Bauchi and UniMaid Borno. The findings of the study revealed that, Information literacy was accorded low priority and was not fully injected into the undergraduate programmes of the library schools surveyed. In ABU Zaria, an IL course was introduced two years ago when the department reviewed its curriculum, but in BUK Kano, ATBU Bauchi, UMYU Katsina there were no IL courses in their curricula. In UniMaid the IL course was blended into the Information Science course. In order to ensure the effective integration of IL Programmes, the paper recommends review of undergraduate curricula or injection of IL programmes in their undergraduate courses, in order to be able to explore the trends in information literacy in Librarianship. It is on this basis that this study concludes by stressing the need to undertake periodic and regular curriculum review, and also advises the Nigerian Library Association (NLA) to recommend to all library schools in the country the inclusion of IL programmes in their undergraduate courses, in view of its importance to the lifelong learning process. This will ensure that LIS programmes in the country are at par with their counterparts elsewhere.

Keywords: *Curriculum development, information literacy, library schools, Nigeria*

Epistemology, Complexity and Information Competencies: Strategic Considerations

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Information Competencies have been gaining terrain in academia. New requirements in both learning assessment and student abilities are redefining the scope of a librarian's reach. The profession's pragmatic nature has historically placed it in the crosshairs of multiple critiques from within academia and the community at large. This is due to the misconception by some of its "superficial" nature and its lack of philosophical tenets. On the other hand, there are those that recognize the capacity and tenacity with which standardized procedures, guides, and manuals are consistently and efficiently produced.

The authors present a working hypothesis that the ACRL norms – Information Literacy Competency Standards for Higher Education –can bridge the gap between technical/informational language and the epistemological concepts using content from the work of philosopher Edgar Morin. It is proposed that his philosophical texts be promoted and studied by educators in Information Competencies. The authors selected Morin's work *Seven Complex Lessons in Education for the Future*, published by UNESCO, and then compared and analyzed its contents with the standards. Morin's ideas provide useful and necessary philosophical foundations to assist students in developing the competency of the evaluation and integration of information in a critical manner.

The authors suggest that the "crisis in education" is not an impediment but rather a window of opportunity for librarians if they integrate the tenets of Morin's work into their professional discourse.

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Keywords: *Information literacy, complexity, Edgar Morin, philosophical thinking*

Young Humanitarians in the Labyrinths of Information Literacy: From Knowledge and Skills to Motivation and Actions

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It is our standpoint that information literacy of professionals working with the young – be they teachers or librarians, school psychologists or social workers – is defined by their attitude to the young people. The first type of attitude is "young people are not able and do not want to select useful information for themselves; only an adult can select such information for the young people". The second attitude is "young people are exposed to attacks of 'bad information', and adults should block this 'bad information' by setting up a variety of restrictions and online content filters". The third attitude is "the youth can create positive and interesting information, and adults need to teach the young how to create such information.

In our opinion, only the third attitude makes one an information-literate professional. Such specialists are not fighting the interests of the young people or information targeting young people, they are rather learning themselves and teaching the young how to create constructive and engaging information. It is most helpful that today a professional can successfully adhere to such attitude with the help of extensive and readily accessible social networks and services, which seem to be naturally fine-tuned for the free hunt for meanings and for creative work.

Experts of the Ryazan Center for psychological, medical and social support of children and young adults (director Irina Voznesenskaya) made a responsible decision to abandon outdated and unproductive ways of preventing socially dangerous diseases among the young. A search for new, modern methods led the experts of the Center to the idea of creating a prevention online resource that would be interesting and attractive to the young. In September 2009, with the support of the Inter-regional center for additional education such a resource was made a reality as a community blog, "The Labyrinth: Get In If You Want To Get Out", http://labirint-rzn.blogspot.com. On the pages of the blog young psychologists and social workers – avoiding a mentor's tone – exchange their ideas of self-expression and communication, health and safety, smoking and alcoholism, AIDS and drugs, love and family. The use of online technologies for preventive work among the young is arousing significant interest among our colleagues at municipal, national and international conferences as well as in various publications. In 2011 "The Labyrinth" took part in the all-Russian contest of educational online resources, "Positive Content," and was nominated in the short-list as the best in its category. In the "Blog of RuNet 2013" contest "The Labyrinth" took the lead in the "People's Vote" category.

Thus, a proper attitude for an information-literate professional would be not to condemn the young or directly forbid deviatory behavior, but rather support the motivation to learn and act upon the truth learned.

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Keywords: *Information literacy, social services, youth*

Critical Information Literacy: Using Social Justice Pedagogy to Deconstruct Power Structures

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The *critical information literacy* movement adopts critical theory to take into consideration the political, social, economic, and historical aspects of information production, dissemination and access (Gregory & Higgins, 2013). As such, *critical information literacy* instruction is a valuable pedagogical tool in which to address social justice issues in the classroom. Interrogating the power structures inherent in information economies via *critical information literacy* instruction provides one means to disentangle the conflation of democracy with capitalist ideology.

This PechaKucha session will present the theoretical basis for critical information literacy and the ways in which it aligns with social justice pedagogy. The work of critical theorists such as Paolo Freire and Henry Giroux as well as library scholars Jack Andersen (2006, 2008), James Elmborg (2006), Heidi L. M. Jacobs (2008), Toni Samek (2007), and Andrew Whitworth (2009) form the foundation of this presentation. The positions of International Federation of Library Associations and United Nations Educational, Scientific and Cultural Organization on information literacy (UNESCO & IFLA, 2005) and media and information literacy (IFLA, 2011) will also be considered in relation to the core values of the library profession as a way to illustrate the social justice issues underscoring librarianship as well as information literacy. By considering our professional values, information literacy, and social justice issues as interrelated we aim to encourage and open up opportunities for librarians to work with their communities to more critically analyze power structures in information production and dissemination. Specifically, we will outline how applying social justice pedagogy (Nieto, 2010; Nieto & Bode, 2008) with first year undergraduate students at the University of Redlands provided one way to develop critical information literacy by means of considering capitalism's affect on information flows, an informed citizenry, and democracy.

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Keywords: *Critical information literacy, social justice, social justice pedagogy, critical information literacy model, media and information literacy (MIL), teaching model*

Media Literacy and Public Opinion: Influence of the Media on Scottish Perceptions of Immigrants and Migrants

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Policy regarding immigration in the United Kingdom is complex and rapidly changing. While Scotland has historically been a country of emigration, the expansion of the EU in 2004 has led to a change in this trend. As of 2011, Scotland reached its highest population in over thirty years, the result of record levels of immigration (Johnson, 2011) thus contributing to an increasingly more diverse and multicultural United Kingdom (deLima, Mackenzie, Hutchison & Howells, 2005). Globally, government policies have changed in response to the worldwide economic recession; immigration policy is one that has experienced frequent, drastic changes in the United Kingdom. In an effort to ensure lower levels of un-employment for native British people, immigration policies and the rhetoric surrounding these policy issues have become much more conservative and negative. The cultural effects theory in media studies accepts that the media has a significant influence on its audience, but that the effects of the media are not instantaneous; they are the product of a "cumulative buildup of beliefs and values over a long period of time" (Glover, 1984, p.10 as cited in Williams, 2003). Understanding how the audiences of media outlets generate meaning from the media is important as it sheds light on how the media influences the opinions, and actions, of people. In order to sift through the copious amounts of information distributed via the mass media, people resort to filtering out certain sources and types of information based on various elements of evaluation, including: authority, viewpoint, and ease of access. While this is necessary in order to sort through the vast quantity of information, it is also dangerous as it allows people to create their own "blinders", thus preventing an individual from accessing perspectives, which may clash with their worldview. Concern regarding immigration is high throughout the United Kingdom and is based more on perception than reality. A recent study published by British Future (2013) found that readers of "tabloid and mid-market newspapers" were more likely to cite immigration as the greatest source of tension on both local and national levels, thus reflecting the dominance of negative political and media discourse regarding the subject. While there is a large body of literature that demonstrates the need for migrants and immigrants and their positive contributions in Scotland, these resources are not necessarily part of the dominant discourse in the media. This presentation will present the research objectives, proposed methodology, and work completed thus far in a study focused on learning more about how information regarding immigration and migration policies is communicated to the indigenous Scottish population in both rural and urban communities and how the general public utilizes these methods of communication. This includes an investigation of what information about immigrants and migrants is being communicated, how that information is interpreted by the indigenous Scottish population, and how different media resources influence the ways in which indigenous Scottish peoples perceive "others" in Scottish society. The information literacy skills of Scottish people will also be explored, with a focus on the process in which they search for, access, evaluate, and use information on the topic of immigration and migration. The role of media literacy will be discussed as it relates to how people process information they passively receive, actively seek, and use from the media.

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Keywords: *Media literacy, information literacy, policy, immigration*

What I Talk About When I Talk About Information Literacy in Spain

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Information literacy in Spain has been germinating and taking shape gradually over the last 8 or 9 years, not only regarding to literature, but in regard to experiences in different types of libraries. This paper aims to show the status of the issue of information literacy in Spain. Beginning with the documentary methodology of a content analysis in specialized literature, this paper then looks at the milestones marking the development of information literacy its primary start at the Toledo Seminar on Information Literacy 2006, where we defined "Information literacy" as information skills in the library environment. Within the following year the Information Literacy Working Group of The Library Cooperation Council of the Ministry of Culture was created, and the AlfaRed platform for the development of Information literacy in Spain was launched. The results are: a selection of the main reference services in this area; some training experiences in analyzing how they are managing the relationship between training users to the Web 2.0 and computer/information competencies; and highlighting the progress and challenges of meeting users' training, information and technology needs. Another aim of this PechaKucha is to show the lessons learned and best information literacy practices that are being developed in different types of libraries - school, public, academic, special and national - in order to meet the challenge of making good use of the information development, participation and communication of citizens. Multiple contexts to address information literacy from the perspective of multiliteracies for multiple users based on different library users: students, teachers, researchers, adults, retirees, housewives, professionals, etc. It also covers areas such as planning and evaluation of information literacy, the development of basic skills programs, teaching tools, and the use of digital media to access and use information effectively, critically and creatively. These experiences aim to show the importance of having pedagogical training of librarians trainers; the importance of leadership (a trained person can be the benchmark in its center between colleagues, etc.); the value of training for future professionals to guarantee better labor practice, the importance of preparing appropriate training for each type of user; the need for evidence on the impact of training users (e.g. through establishing measures to see how users do their task, how professionals investigating and publishing consulting information resources of the library...). The ultimate aim is to show what's going on in Spain to enable people to interpret and make informed judgments as users of information, as well as to become producers and distributers of information and knowledge in their own right, and to empower citizens to better make critical decisions.

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Keywords: *Information literacy, Spain, state of affairs, best practices*

Information Literacy Instruction in Nigerian Academic Libraries and Changes over Time

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The university library is considered an important component of a university institution. It plays a significant role in the instructional and scholarly life of its mother institution by collecting, preserving and making available for use books, manuscripts, journals and related materials. It designs its services and collections to meet the instructional and research needs of its mother institution. In order to fulfill this giant task, libraries' resources and services keep changing over time. Initially, libraries were keeping only print material. Later, with the emergence of other medium of information, formats such as audio and video cassettes, microfilm and microfiche became part of libraries' material. With the advent of computer and other information and communication technologies, they became an integral part of library's resources.

This development presented the serious challenge of training students to exploit the newly integrated information resources. The system of teaching the skills of using particular library resources, known as User Education, no longer satisfies the current students' needs. Students need critical and evaluative skills in order to effectively harness the inundation of information resources they face. Therefore, university library users must learn new skills beyond using the online and offline electronic library resources.

The objectives of this study are to look at university libraries' efforts towards ensuring that their users become information literate, and to learn whether the aspects that are been taught to users are adequate enough to make them harness the library resources as well as become independent information seekers. The study also examines the changes recorded in the teaching of library skills over time in Nigerian University Libraries. Who is responsible for teaching information literacy in Nigerian University Libraries? What are the challenges university libraries in Nigeria face in the course of teaching information literacy and the strategies adopted to overcome these challenges?

Using stratified sampling technique, three university libraries were selected. One university each is selected from the first, second and third generation universities of North-West Zone of Nigeria. Two of the universities are public while one is privately owned. A questionnaire was used to collect data from the professional librarians at the three selected university libraries.

The study revealed that the two libraries of the first and second generation universities were initially teaching students traditional information search skills such as how to use the card catalogue and other traditional library resources. Eventually, with the automating of their library services and integration of electronic resources into their libraries, they advanced to teaching their students a component of information literacy. The library of the third generation universities immediately began teaching the skills of information literacy because they had electronic resources and internet services right from their inception. Apart from teaching students some basic library skills, the libraries also provide library tours, orientation sessions, and hands-on programmes to the students. The challenges these libraries face include new students' poor library knowledge because they lack previous library experience, and their anxieties when using computers and other ICTs tools. Another challenge is inadequate knowledge of using ICT tools on the part of the staff. This paper recommends that more hours of teaching library skills should be provided, libraries should liaise with the faculty to refer students to the library for specific assignments that will enhance their skills, and staff should be trained on more aspects of information literacy.

Keywords: *Nigerian university libraries, library user education, information literacy*

Information Literacy – Evaluation of Acquired Competencies in LIS Curriculum: Students' Perspective in Practice

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Future librarians are educated in Department of Information and Communication sciences Faculty of Humanities and Social Sciences University of Zagreb. During their study, students acquire competencies for working at a library. Some of the competencies are: information literacy, professional ethics, collection development, knowledge of standards and regulations, collection management, organization of knowledge etc. Information literacy competencies are acquired on courses like: Reference Sources and Services, Systems for Indexing and Searching, Digital Library, Classification and Classification Systems, Information Legislation and Ethics, etc. According to the Department's LIS curriculum, students have to do certain number of hours of practicum in several libraries. Practicum is scheduled in the fifth year of studies in the last semester. In their practicum, students should apply the theoretical knowledge acquired in lectures.

The purpose of this paper is to show whether students apply theoretical knowledge of information literacy in their practicum and whether these competencies help them master their practicum tasks. Competences are measured by evidences of real performances. The hypotheses proposed by the author in this paper are: (1) theoretical knowledge of information literacy helps students to master tasks in practicum easily; (2) during practicum in the library, students supplement their knowledge of information literacy.

The goal of this study was to confirm or deny the presumed hypotheses. Approximately 40 5th year LIS students participated in the survey. The survey questionnaire was used to examine students' views on information literacy and whether they applied their theoretical knowledge of information literacy in their practicum. Preliminary results show that the students got the information literacy competencies through their study. Acquired competencies allowed them to master tasks set before them in practicum.

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Keywords: *Information literacy, LIS education, LIS practicum, Croatia*

To Preach or to Practice: Bridging the Gap Between Library Practice and User Experience in Information Literacy Teaching

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In the non-academic world, Google dominates the way people search for information. Its unsurpassed scope combined with a simplified search methodology and personalized search results has become immensely popular, and its approach has been applied to a myriad of search tools, practices and products. With Google Scholar, Google has entered the academic world once and for all, to the relief of students and the horror of librarians. Nowadays, librarians complain about the Googlization of the students' search techniques, whereas students complain about the increasingly complex ways in which academic information is offered. It seems that information literacy courses can bridge this growing gap. But do they?

Most current information literacy courses seem to be based on the assumption that students have no notable existing search techniques before they enter higher education. Information professionals see it as their mission to alert students to their lack of knowledge and consequently teach them everything there is to know about information literacy. While we do acknowledge the value of information literacy, we also propose a more pragmatic and practical way of teaching, adapted to pre-existing knowledge and the natural way students are accustomed to search in their everyday life.

By combining a literature research, in-depth interviews and a practical investigation into the actual search techniques of both scholars and students in the Netherlands, the research we are conducting addresses these issues and formulates a possible answer to the key question: to what extent should we drop the missionary's role and adopt a more pragmatic attitude, concentrating on what students actually need to successfully complete their studies?

Focus Points

In the PechaKucha we will present the outcomes of our research and give our vision of the adaptation of information literacy teaching to the modern state of affairs and needs. The following issues will be addressed:

- The current practice of search methods of both scholars and students;
- The awareness that students have already developed their own search techniques and methodology, outside of the university;
- The limited extent to which information literacy teaching can influence these pre-existing search techniques;
- The fact that students' teachers are very similar to students in the way that their search methods are also very strongly predetermined by what they use in their private lives;
- The suggestion to start information literacy teaching by taking up the perspective of the student instead of that of a library expert, and by building on familiar techniques instead of trying to modify behavior.
- Our conviction that the success of certain methods and tools of internet giants such as Google and Amazon should be considered a source of inspiration for libraries, instead of a threat.

Keywords: *Instructional design, information literacy teaching, modern search techniques, Google generation*

Information Literacy at the Workplace: A Case Study of Steel Industry

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Information is the key driver for gaining a competitive advantage in the corporate world. Access to relevant information and its effective use facilitates building up the information capability of employees. Information Literacy (IL) provides an opportunity to personnel to acquire knowledge and motivates them to become life-long learners. The study highlights the growing importance of information in industrial organizations and reviews the status of IL initiatives at the workplace at a large steel manufacturing company in India. It gives a brief conceptual background of IL programmes, and explores the effects of IL Programmes as perceived by the company on evaluation of employees' performance prior to and after the IL programmes. It also details monetary benefits gained both by the organization and the individuals consequent to such programmes. The data for the study has been collected from the reports of Operations Departments and the Training Department's evaluation systems. The financial benefits that have accrued to the company as a consequence of IL programmes, have been compiled from both production and financial data from the years 2009-2012.

Further IL programmes also resulted in increased number and quality of articles contributed by experienced and skilled employees in 'Vikasdhara'- the Training Journal of Vizag Steel. The practices and creative solutions being followed by different work groups are highlighted in these articles and they serve as guide-posts for emulation by others who either adopt them or improve upon them. To facilitate a clear understanding of these resources, wherever possible, information is also made available in the local vernacular, both in print and electronic media. This approach has seen a rise in the employees who are taking advantage of the information manifold.

The study also describes the changing role of corporate librarians and emphasizes the effective role of Information Literacy at the work place. It gives a brief profile of Vizag Steel; a 3 million tonne integrated Steel Plant at Visakhapatnam, India. The Central Library has had an impact in expanding the horizons of the workforce since it made it convenient for them to access information on subjects of their work interest.

The complementary role of KM initiatives and IL programmes has also been studied. The KM initiatives taken up at Vizag Steel to complement the IL programmes include Communities of Practices (CoPs), which resulted in several benefits like improvement in specific energy consumption in Light Medium and Merchant Mills' furnace, reduction in crane rail consumption in Wire Rod Mill, and reduction in Electrical Motor drives failures. Another KM initiative, Learning from Each Other (LEO) workshop, is a collaborative effort in the Indian Steel industry to learn from each organization's practices in operations area for innovation / modification and knowledge sharing. It is unique in that competitors collaborate for mutual benefits.

The learning from this study of the impact of IL Programmes in Operations area could be gainfully extended to other functional areas of management including Projects, Materials, Human Resources, Finance and Marketing.

Keywords: *Information literacy, industry, knowledge management, learning organizations*

Wireless and Mobile: The Impact of New Technology

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The research literature reveals little about the on-and offline literacy practices of those youth historically marginalized in the digital world due to the lack of access, inability to afford, and limited support (Lenhart, Ling, Campbell & Purcell, 2010; Warschauer & Matuchniak, 2010). With mobile communications being more affordable, and free apps more prevalent, youth from low socio-economic households and communities have greater opportunities to engage in the digital world (Lenhart, et al. 2010). But what are urban youth using, how are they using them, what do their literacy practices look like, and why those particular devices?

Using a case study methodology this study looked at how a 16-year-old urban male engaged in numerous literacy practices within various on- and offline communities. Communication today utilizes alphabetic sequences as well as sound, gesture, image, emoticons, photographs, and videos to convey or enhance meaning (Lankshear & Knobel, 2006, 2007). Different modes offer different potentials for making meaning (Vasudevan, 2006). In using multiple modalities this subject expanded the reach of his voice and ideas beyond those of his inner circle. In capturing and sharing what was happening in his community he moved from the position of consumer to a producer of media. This transition impacted his sense of self, purpose, and attitude toward learning in general.

The educational and socio-cultural value of these technologies is underrepresented in mobile communication research studies (Vasudevan, 2010). Focusing on the intersections of literacies and technologies in the lives of youth, especially those perceived to be in the margins of educational discourses, is critical if we are to ensure that all youth have the opportunity for an education that bridges skills, knowledge, and interest acquired in and beyond academia. A greater understanding and appreciation of the technologies, spaces, and digital literacy practices of youth is needed. The range of technologies currently available and being developed, are increasingly present, accessible by youth, and should be seen as an opportunity to contribute to a newly invigorated literate tradition. These new approaches provide an "in" for those youth that are kept at the margins of literacy processes in schools (Vasudevan, 2010). How can these "ins", interests, and self-motivations be supported and transformed into journeys that span a lifetime?

The significance of this type of study is that it draws attention to the social, cultural, and historical perspectives as well the impact of mobile technology, and the utilization of multiple modalities by urban youth. Understanding urban youth and the relationships between and amongst individuals, communities, literacy, media literacy, and mobile technology is essential if education systems are going to meet the needs of youth and contemporary society, as well as engaging youth in learning.

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Keywords*: Mobile communication, literacy practices, urban youth, lifelong learning*

Information Literacy in “Strategic Document of the Information Society" of Iran

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In today's world, information is the power of governments. In this age, advanced societies equipped with information, in addition to economic, industrial or military abilities, are superior to other societies. On the other hand, information improvement underlies enrichment of the other three considered aspects. Nowadays, it can be alleged that distinction between developed countries and other countries is due to the production, organization and usage of information. Governments need and encourage empowering people to have an information-centered community. In today’s information geopolitical trend, the necessity for planning to have a specified framework for information society has led Iran, as a developing country, to fulfill this aspiration by developing a "Strategic Document of The Information Society" (2nd edition). This document was released by Supreme Council of Information and Communication Technology to achieve the vision and values of the Information Society in 2009. In order to move towards Information Society, it is essential to train informed citizens. At this stage, the need for information literacy as a tool for the Information Society is even greater. Strengthening information literacy is required as an essential step to improve information skills. Since 2009 Iran has passed laws to develop a better globalized information society. This paper uses a qualitative approach by content analysis methodology. We will investigate the role and status of information literacy in the mentioned document. The ultimate value of this research is to inform the relevant authorities and those responsible for formulating national policy to facilitate mastery of information literacy. Understanding the growing importance of information literacy by authorities will cause development and the fostering of an information society, which in turn, will have an impact on the establishment of a national information society. The efforts of national policy in the field of information are to enact national capabilities to effectively and timely meet users’ information needs in various sectors. Thus, the final goal of this policy is to empower users to successfully accomplish functions which are performed in line with national development.

Keywords: *Iran, information literacy, information society, Strategic Document of the Information Society, qualitative content analysis*

Information Literacy at Brno University of Technology: Present and Future

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In our opinion, information literacy education is an essential part of library duties, especially at academic libraries. Nowadays, when information is searched mostly online and the classic functions of libraries are becoming minor, teaching information literacy is becoming one of the fundamental services, which keeps libraries relevant.

We would like to introduce a developing system of information literacy at Brno University of Technology and share our current practice with colleagues. Information literacy at Brno University of Technology has been intensively promoted and taught since 2006, when we started e-learning courses in the Moodle system for the first year students. The main goals of the course are as follows: to introduce the system of libraries at the university as well as the online catalogue to the students; to teach the students basic skills necessary for effective work when searching for information (online, in libraries, in prepaid databases); to provide basic knowledge about citations and to work with searches and annotations. The course has become very popular and at some faculties it is also an accredited and compulsory course now. Each year more than 2500 students pass the course. The course has an e-learning form and is administered by librarians at each faculty. Every lesson ends with a specific test or task. Some tasks are evaluated automatically by the system while others are evaluated by the librarians. The role of librarians as tutors also includes help and communication with the students.

At present, we focus on further extensions of this course with the aim to build up a complex information literacy solution at the university. Another e-learning course was prepared and went successfully through its pilot year. This course is specialized in citations and different citation styles and is designed especially for Ph.D. students.

Currently, we are working on a course devoted to electronic information resources and practical use of them. It will be recommended to students in their last year of study in order to help them find resources for their thesis. The students will learn about each database available at the university in detail and as well as open access resources. It is being designed as e-learning with many interactive tutorials and the possibility to arrange live lessons. We would like to push it ahead as a compulsory course for the third year students.

There is another course for next year currently being considered. This course should assist Ph.D. students and researchers with writing and publishing scientific papers. Electronic information resources as well as writing and publishing scientific papers are currently subjects of live workshops held at the university irregularly and should be replaced by the newly prepared courses.

In general, our final objective is to establish compact information literacy courses accompanying our students and other target groups throughout their whole lives at the university, and helping them learn and become proficient researchers. We aim to cover their needs from the first year of study to the researcher stage.

Keywords: *e-learning, Moodle, academic library, information literacy*

Policies for Information Literacy Instruction in UACEG

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In addition to the statement of the Bologna Process "...equipping graduates with the right mix of knowledge, skills and competences which enable them to better respond to national, regional and global challenges" policies of the library of the UACEG (University of Architecture, Civil Engineering and Geodesy) focuses on creating the most appropriate higher education space. Concepts like “information literacy”, “learning to learn” and “practical application of theory” have a strong relationship with university libraries.

The project reflects the modern paradigm of higher education, and creates a methodology for an open course in traditional and electronic sources of information owned by the UACEG University library and intended for students and researchers. Creation of theoretical knowledge and technological abilities for work with information sources ensure higher proficiency of student learning, and greater professional realization later in the context of lifelong learning. This leads to the formulation of durable habits and discipline when looking for information so that the problems connected to orientation in the numerous specialized information collections will be avoided.

The information literacy instruction course in UACEG library is aimed to the specific needs of its users Similar programs have been implemented by other universities in Bulgaria, but not for students in architecture, civil engineering and geodesy. Another aspect of the program is the possibility of individual instruction, small groups or course integration into the curriculum. Library specialists created and are lecturers in the program are an engineer, an architect, and a designer.

The PechaKucha presentation is mainly about information literacy instruction directed towards different users groups in the University of Architecture, Civil Engineering and Geodesy in Sofia, with the stress on information literacy for first year students. A study of the model of open course for information literacy for first year students in the department of Urban Planning was performed. Results of a pre/post questionnaire developed to determine the information needs of library users and how their information seeking behavior was influenced by their previous experience are reported. The emphasis is on students’ use of foreign languages, especially English, use of library e-resources (e.g. e-catalogue and databases), preference for traditional or electronic resources, and willingness to attend library instruction programs. The results reveal students’ opinion about information literacy instruction including new methods of searching, new resources of information, how to cite, and ethical use of information resources. The aim of the program is to be responsive to the changing information needs of first year students, as the course is integrated into the curriculum through the last five years.

The findings revealed that students not only recognized the need for information literacy instruction, but expressed a wish for further sessions. This study provides outcomes for further investigation and basis for refining the methods used. The librarian experts perceive the information literacy instruction program as a long process demanding sustained efforts. Therefore, in order to meet and settle all the challenges that come forward, the library is looking for partnerships and cooperation with other similar institutions.

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Keywords: *Information literacy, information literacy model, information literacy good practices*

Information Literacy for Doctoral Students: The Polish-French Perspective

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The aim of the presentation is to describe the problem of information literacy [IL] (ALA, 1989; Johnston & Webber, 2006; Lloyd, 2003) from the perspective of Polish-French comparative research of information users.

The results of research conducted among doctoral students at the University of Warsaw and the University of Lille will be presented. The questionnaire and covert participant observations with elements of grounded theory were used (Babbie, 2008; Glaser & Strauss, 1967; Pickard, 2007). The research tended on the one hand to verify the hypothesis of a low use of scientific journals by doctoral students, and on the other hand - to answer the question of what activities librarians and faculty should undertake to increase this use.

The total research sample consisted of 578 doctoral students (317 French and 261 Polish). Grounded theory was applied to analyze the collected data. Grounded theory was chosen because it is an interpretive method that allows conducting research from an near-experience perspective. The research that at the beginning aimed principally at investigating the use of scientific journals among doctoral students, extended with time; it was observed that in fact there has been a lack of promotion of IL instructions proposed by libraries to doctoral students. This was also one of the main obstacles against using journals – students were not trained sufficiently or even at all.

The elements of grounded theory in this research were used not only for data analysis, but also to define the conclusions and recommendations for improving cooperation between libraries and departments for the general promotion of IL. The major findings of the study are: lack of specialised library instruction dedicated to doctoral students (in the case of Poland); and lack of promotion or popularisation of such instruction among doctoral students and lecturers who could encourage their students to participate (in the case of France). The recommendations in the case of University of Warsaw included promoting IL training to doctoral students; and in the case of University of Lille –more effective promotion of the existing library instruction offerings.

In conclusion, the actions that might support the development of information literacy in higher education in both countries will be described. These are: cooperation between librarians and faculty, promotion of information literacy in academic environments, and embedding information literacy education into curricula.

The framework of education programme, oriented for doctoral students and based on international standards of information literacy, will be discussed as well. This programme aims principally at increasing the use of scientific journals.

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Keywords: *Information literacy, doctoral students, scientific journals, grounded theory, Poland, France*

Developing Media and Information Literacy Competencies through Scholarly Communications

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The expansion of scholarly communication through open access resources is essential for facilitating knowledge sharing worldwide, as well as for extending scholarly and scientific research to developing countries. A key role for universities will be to insure that students develop the media and information literacy (MIL) competencies essential for shaping and leading the new face of global scholarly communications. This PechaKucha presentation proposes that one means of developing these competencies will be for university students to become actively engaged in the scholarly communication process as producers and disseminators of research through digital institutional repositories.

This contribution will present preliminary findings from a study exploring the development of media and information literacy competencies in university students who have participated in digital student research journals. The initial scope of the study includes institutions in North America, the United Kingdom, and Australia using the Digital Commons institutional repository platform to host student research journals.

The framework for assessment of the MIL competencies will be based on the core components of the UNESCO *Media and Information Literacy Indicators*: Component (1) Access/Retrieve Media and Information; Component (2) Evaluate/Understand Media and Information; and Component (3) Use/Create/Communicate Media and Information.

Up to now, there has been more research and attention in the field of information literacy on the first two MIL components of access and evaluation, but rather little on the third component – the use, production, and creation of knowledge. In recent years, however, the growth of the open access movement and the development of institutional repositories for scholarly and creative works have put a spotlight on the need for competent scholars, knowledge workers, and citizens who have the intellectual and technological tools, as well as the social and ethical awareness, to be able to create new knowledge, but also to create the context for disseminating this knowledge freely to a global audience.

For this study, indicators for Component 3 (Use/Create/Communicate) will be applied to measure attainment of MIL competencies. Findings from the study can help determine what benefits students gain from active involvement in creating and producing knowledge. Can students learn the value of evaluation skills through acting as peer reviewers and having the responsibility for selecting what a worldwide audience will read? Will they gain a deeper understanding of the stages of the research process? Will they profit from direct experience with the many dimensions of intellectual property issues, such as plagiarism and proper use of sources, authors' rights and copyright**?** Will they see the possibilities for expanded and ethical global sharing through experiencing first-hand the collaboration among scholars?

Research on MIL competencies and institutional repositories can contribute to the development of curricula and assessments that can foster the conscious and successful transformation of students into scholars and informed citizens.

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Keywords: *Information literacy, media literacy, scholarly communication*

Information Literacy of Medical Residents in a Teaching Hospital in Mexico

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Background: Bibliographic searches by medical residents with the assistance of librarians have been reported to be of benefit compared with searching without help. However, no previous studies have been found about the database and searching strategies of medical residents in Mexico.

Aim: To explore the information literacy used in the sessions for the reporting of articles on diverse medical topics and its application for their clinical practice in a sample of residents of different specialties in a Teaching Hospital in México.

Methods: This study uses a cross – sectional design. Medical residents of different specialties (n=35) were invited for the pilot study, and given a questionnaire with 17 items. The items include searching strategies, data base retrieving, accessing the digital hospital library or university library to locate sources of information and knowledge application for their medical practice.

Sample Population: A total of 35 participants, 24 male (60.57%) and 11 female (31.42%). The age groups were divided as follows: 20-29 years (n=29), 30-39 years (n= 12) and 40-49 years (n= 1). The number of residence level were: first year (n= 1), second year (n= 9), third year (n= 10), fourth year (n= 1) and fifth year (n=6). Specialties studied were: Surgery (n=6), Pediatrics (n=4), Pain Medicine (n= 2), Radiology (n= 3), Gynecology (n= 7), Genetics (n= 3), Anesthesiology (n= 4,) Geriatrics (n=3), Internal Medicine (n= 1), Oncology (n= 3).

Results: 71.4% (n=25) of the residents received IL sessions for locating articles on diverse medical topics, and 28.7% (n=10) did not. The average duration of each session was one hour, and the frequency of the sessions was as follow once a week (n= 18), twice a week (n= 2), three times a week (n= 3), every two weeks (n= 2) and occasionally (n=3).

71.42% (n=25) report that these sessions improved their knowledge and 31.42% (n=11) felt their clinical practice improved. 44% of the respondents felt the sessions always impacted their professional practice, and 41% felt they impacted “very often.” The types of papers analyzed during the sessions were: Systematic reviews (45.5%), Clinical research (40%) and basic research (11.4%). The professional medical search engines and databases they used were: Medline Pub Med, MD-consult, Google Scholar, Cochrane Library, Ovid, Sprinker Link, EBSCO host - JAMA evidence, and Science direct -Access Medicine. Access to full text article was obtained through the Hospital Digital Library in the 28.5% of the searches, through the National University of México Digital Library also in 28.5%, and directly from the hospital library in 17.4% of the searches.

Conclusion: This pilot study is the first exploration of Information Literacy and Medical Education in a Mexican population. This is a new research area for librarians in our country.

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Keywords: *Information literacy, medical residents, medical library*

Using a Digital and Information Literacy Framework to Underpin Skills Development for Distance Learners Studying at the Open University, UK

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"Digital literacy" at the Open University (OU) refers to "the skills, competences, and dispositions of OU students using digital technologies to achieve personal, study and work-related goals" (Open University, 2012a). This short presentation will introduce the Open University Digital and Information Literacy (DIL) Framework (Open University, 2012a), which provides a common reference point for librarians, academics and learning technologists seeking to integrate these skills into the curriculum. The Framework is being used to develop learning activities, meet learning outcomes and support progression. Case studies are included to illustrate how this works in practice.

Traditional IL skills have been taught at the OU for several years. However the need for students to equip themselves with employability and life long learning skills recently led to the extending of the Framework to encompass a broader range of digital practices such as creating digital content, communicating, sharing and collaborating online. This was done in collaboration with the University's Institute of Educational Technology with input from a group of interested stakeholders. The Framework consists of five 'stages' of development of DIL skills, mapped against 'levels' of OU study from Access (level 0) to Masters.

The Framework has been made available via an interactive website, which allows users to look at skills at one particular level or at the progression of skills through several levels. A set of facilitation cards has been created (Open University, 2012b) to enable easy engagement with the concepts by academics during the production of new modules.

A growing collection of bite-size learning materials to illustrate the skills in the Framework is available via the award winning 'Being Digital' site (Open University Library Services, 2012c) and complements the activities being developed by curriculum teams themselves. It includes a self assessment checklist which enables students to check their own skills level. In order to track progress and ensure consistency, mapping of digital and information literacy content in qualifications is being carried out. This will enable clear auditing of activities and helps to identify any gaps in provision so that greater coherence for skill progression can be achieved

Librarians are viewed as key advocates for integrating these skills and have an important role in promoting the ways in which DIL can enhance independent academic study, provide students with employability skills and deliver a sound basis for lifelong learning.

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***Keywords**: Digital literacy, information literacy, DIL framework*

Individuality and Diversity among Undergraduates' Academic Information Behaviors: An Exploratory Study

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This PechaKucha session describes a study of how college students organize and manage their personal academic information – the information they create, collect and use to complete their academic tasks and fulfill their roles as students. It is based on research in the Personal Information Management (PIM) sub-field of Human-Computer Behavior that "refers to both the practice and study of the activities a person performs in order to acquire or create, store, organize, maintain, retrieve, use, and distribute the information needed to complete tasks…and fulfill various roles and responsibilities" (Jones, 2006, p. 453). Previous studies of PIM, however, overwhelmingly focus on adult professionals in their places of employment, with the ultimate goal of designing applications and gadgets to aid and improve management tasks. This study employs ethnographic methods to investigate the information organization and management behaviors of undergraduates in their campus residential rooms at a large research university. College students are often stereotyped by the media and institutions of higher education as 'digital natives' – having grown up in a digital world, it is assumed that they prefer to work, play and study online using the latest electronic gadget or application. These behavioral assumptions are based on mass surveys that present generalities but cannot provide perspectives into the numerous individual nuances and exceptions. But technological and pedagogical policy decisions based on generalities and stereotypes may miss important aspects of students' information behaviors and preferences, thus forming barriers to their learning potentials.

The participants in this study display a wide range of behavioral preferences when using their laptops for academic tasks and organizing their academic milieu. Most state a preference for print formats over online when they need to engage in deep reading, but admit that journal articles and other readings are often cheaper and easier to access online. Students also display a diversity of high and low tech strategies to plan and manage their academic tasks. The proposition is made that just as every individual has unique learning styles and preferences, so too do we have individual information styles, and we apply our tools and gadgets in our own ways to best accommodate our own styles. Findings from this study further our understanding of college students' information behaviors, and will be of interest to practitioners and scholars in the fields of library and information science, higher education, and information technology.

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Keywords*: Personal information management, college students, information behaviors*

Door-to-door Information Literacy to Reach the Busy Faculty: The Case of University of Dammam

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Information literacy is both the understanding of concepts and the acquisition of skills that support independence in identifying, accessing, evaluating, organizing and communicating information. Information literacy permits individuals to learn, work and participate in the global information society and is relevant to all academic disciplines and all levels of education (University of Vermont, 2006). Owusu-Ansah (2003) believes that as learning is multidimensional, integrated, and revealed in performance over time, so special approaches should be used for promoting information literacy among students, faculty, and administrators of colleges and universities. Many standard guides are now available to facilitate the information literacy providers (Beile, 2011). Several studies have shown that lack of information literacy is partly the cause of underutilization of existing information and communication technologies (ICTs), and information resources. Therefore, now the libraries are realizing their role and are struggling to respond to these challenges (Baro, Endouware, & Ubogu, 2011; Walker, 2006). This was also the background drive for starting the outreach information literacy programs at University of Dammam, KSA, within a recent academic year. The specific objectives of the presentation are to: a) share the experience of outreach information literacy trainings for faculty at University of Dammam and to review its outcomes; b) find out the end-users' opinion about these trainings; c) document the personal observations of the trainer/organizer and draw the future directions. To achieve these objectives, unique qualitative techniques of data gathering, such as literature review, personal observations and trainees' open-ended feedback were employed, analyzed, and reported. In the month of November 2012, an outreach information literacy program was initiated at University of Dammam (UD). This initiative was based on the formal/informal feedback about very low use of online resources subscribed by UD. As a newly appointed director of female libraries, the first author decided to launch an outreach or door-to-door information literacy program at the female campus of UD as a pilot test. In this context, different departments were contacted for information literacy trainings. The target audiences were the faculty members of different departments. The principal author went to each department individually and set a training schedule according to the convenience of busy faculty. Each training session was customized according to trainees' subject needs. After each training session, open-ended feedback was also gathered from the trainees. The presentation in hand reports the feedback analysis of 27 training sessions. The feedback summary shows that faculty members were highly excited and satisfied with the information literacy trainings. They expressed that they were in the need of such training opportunities for a long time. They also appreciated the outreach, hands-on-practice, and customized training approach. They mentioned that such training programs are also important for motivating them in the use of available e-resources and conducting the research. The author observed that the participation in the training programs was between 80% to 100%, which would not have been possible without this user-centered and customized approach. The trainees were highly motivated and eagerly participated in the trainings. The core message of this experience is that the information professionals should come out of their comfort zone and should design user-centered information literacy programs. This approach would not only increase the use of library and online resources but information professionals would also earn remarkable respect from their users' community.

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Keywords: *Information literacy, faculty training, Saudi Arabia*

Posters

Undergraduate Student Information Literacy in Shahid Madani University of Azerbaijan: A Case Comparison with LIS Students

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The purpose of the present study is to investigate information literacy of undergraduate students in Azerbaijan Shahid Madani University in all fields and compare it with the information literacy of students in Library and Information Science. The statistical population included 224 undergraduate students of Shahid Madani University of Azerbaijan randomly selected from the class of 2008. This research was conducted by survey method and data has been collected by using questionnaires designed based on the information literacy capabilities standards for Higher Education (ACRL). Findings indicated that the average score for library science students is higher than half of the standard score while the information literacy scores of students in other fields are lower than half. Only 28 people out of total population scored higher than half of the average score.

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Keywords: *Information literacy assessment, Azerbaijan Shahid Madani University, students, library science students*

An Introduction to Siamak Information Literacy Model

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In this paper Siamak information literacy model is introduced. This model presents 9 steps for information literacy education. Transposition and application of each of the 9 steps depends on individual needs. However, mastering the 9 steps is necessary for learners to become information literate. In this model, it is assumed that learners have the minimum academic degree and information literacy is not a one-dimensional issue. It must be studied and assessed from various aspects. The internal and external factors that are involved are identified in order to remove barriers and reinforce strong points. The strong points of this model are going beyond mere mechanics of information research. The researcher argues that information literacy skills are composed of emotional motivations and cognition (thinking). She believes that all information literacy skills must be taught with regard to Information Literacy Competency Standards for Higher Education, within the appropriate context of critical thinking, creative thinking and emotional intelligence. She presents some justifications for this claim. In this model, a psychology expert is necessary for teaching information literacy skills. The approach of the model is research-based.

This model, like all other information literacy models, offers steps for learning and effective implementation of IL skills. It also includes steps for defining titles, gathering information, and providing findings, and it is also supportive of IL standards.

None of the information literacy models (such as Bruce, Kuhlthau, Big Six, etc.) has explicitly dealt with teaching critical thinking, creative thinking and emotional intelligence. For example, an information-seeking model is very similar to traditional library research. This model focuses only on skills related to the resource, for example, locating, accessing and using information, and it differentiates library skills from other skills like critical thinking and analysis, which is most needed for effective usage of information. Only the Kuhlthau model goes behind the mechanics of information seeking, and enters three modules of stimuli (feelings), cognition (thinking) and physical (actions and strategies) in her model. In contrast, the Siamak model explicitly stresses teaching critical thinking, creative thinking and emotional intelligence during or before information literacy education is started. Although the Kuhlthau model combines stimulus, recognition and physical, it emphasizes the order of the steps mentioned above; however, in the Siamak model, the regular succession of the 9 steps can vary, depending on the individual's needs, and following the strict order of steps is not necessary.

Keywords: *Information literacy, information literacy model, Siamak information literacy model, critical thinking, creative thinking, emotional intelligence*

The Library as an Element in the Information Literacy and Development: Role of Librarians

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This paper is of the view that the library is an information resource necessary for a thriving national development and global culture, suitable economy and acceptable democracy. Literate citizens must be able to recognize their information need, and be able to identify, locate, access, evaluate and apply the needed information, just as Li (2007) observed that in the age of information explosion and technological advancement, issues of information storage, organization, access, and evaluation have become necessarily important in our societies. Addressing issues of information literacy and designing how they can be best integrated in students' learning process are of critical importance. This should be of greater concern in a country like Nigeria where literacy and information standards are generally poor. The library should advocate guides to building information literate communities and creating enabling environments for literacy and lifelong learning because literate populations are more likely to develop economically and promote positive community developments. Similar efforts have been made in several instances in Nigeria with little result, probably because they have not been backed by adequate learning and human resources, the type that only information professionals can deliver.

This paper proposes that literacy for development initiatives must be situated within the library context with the librarian as a principal facilitator using the two models: collaborative instruction and community partnership. The classroom teacher alone cannot successfully complete the process of teaching and learning as it is often the case in Nigeria; he or she must be supported by information professionals. Incorporating Information literacy into the Nigerian educational system, especially the literacy campaign programmes would be most helpful. As the world becomes more and more united, there is an increasing need for greater cooperation and integration in all facets of national development, which always necessitates partnership in education, economy, and technology. In their study of significant turning points in Even Start programs in Ohio, Rasinski and Padak (1994) quoted the state coordinator as recommending the use of formal agreements in partnerships, including written agreements.

This is generally lacking in Nigeria, especially in relation to the mass literacy programmes embarked upon by successive governments. This paper posits, however, that working in partnership demands some methodology and careful planning if the goals of literacy must be achieved.

Mitchell and Scott (1993) described how inter-agency collaboration can succeed only if three issues are properly addressed: namely, if professional norms are developed to help staff move beyond application of their expertise... Inter-disciplinary norms of professional cooperation are developed to help guide consultation and decision making among different types of professionals and institutional norms are developed. Many types of formalized training, in-services, and information sharing sessions can benefit and support the literacy partnership, provided they are open to all stakeholders.

The paper recommends that skills of information literacy and critical thinking, with a focus on library resources and librarian expertise be incorporated into literacy and lifelong learning in all ramifications.

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Keywords: *Information literacy, information profession, librarians, libraries, literacy, literacy intervention, national development*

Information Literacy and its Importance for Youth: A Case Study of Elementary and High Schools in Istanbul

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Development of information and communication technologies has caused proliferation of information and information carriers. On one hand, technological developments have increased the storage and transmission capacity of information systems day by day. On the other hand, Web 2.0 has provided individuals in the information society an easy way to produce and share information without an editorial and review process. All of these developments require information literacy skills to deal with the vast amount of information, not all of which is equally reliable.

In order to create awareness, especially regarding the importance of critical thinking skills for young people in Turkey, the Innovative Library Initiatives Promotion Group (ILIPG) developed a project in cooperation with the Istanbul Provincial Directorate of National Education. A research study was planned of primary and secondary schools in Istanbul. A survey was carried from September 2008 to March 2009. Fifteen schools (both public and private) were selected randomly. A questionnaire composed of 23 questions was prepared, based on Philadelphia University's Information Literacy Program, Project SAILS (Standardized Assessment of Information Literacy Skills), and the Washington State University (WSU) libraries information literacy works. 2.728 students participated in the Turkish survey, 53% of whom were from high schools, while 47% were from primary schools. Following the survey, in the next stage of the project students were given assignments and these assignments were evaluated.

In this poster, data collected during the project will be presented and elaborated. Following are the conclusions and recommendations drawn from the data analysis: First of all, opportunities should be created to teach information literacy skills to students both in primary and secondary schools. Second, teachers and librarians should collaborate in teaching these skills. Third, since this collaboration requires information literate teachers, teacher training should include information literacy. Finally, a national strategy is needed to develop and support information literacy initiatives.

Keywords: *Information literacy, ILIPG, youth*

Media Social Responsibility in the Public Image of Football Referees

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Background

Freedom of speech and freedom of information are widely considered as pillars of democracy and taken as benchmarks for the openness of any given state. However, freedom of speech for all does not mean equal representation for all social groups in the public debate. Media markets are often reduced to an oligopoly of actors who act as opinion leaders in the "two-steps flow of communication" (Lazarsfeld, Berelson & Gaudet, 1944). What is left of these essential freedoms for social groups with no media literacy? Their image in the public debate rests in the hands of journalists and media owners, whose agenda may differ on issues crucial to them (Habermas, 1992). It raises the issue of work-ethics in the process of information. Are journalists equipped to provide service to all social groups, even the remote ones? Do their employers give them the necessary leeway to perform this service? Or is the information business only profit-oriented?

Methods

French football refereeing is crucial to study these questions. French sports media market is home to a handful of powerful private networks and French referees are required by their hierarchy not to talk to journalists, allegedly in order to avoid polemics. French referees, who perform a public service by keeping sport within the boundaries of controlled violence (Elias & Dunning, 1994), are therefore media non-participants by their own will, dependent on a third party for their image in the public debate. It is paradoxical since Foucault (1975) insisted on the importance of representation in "the art of punishing". Sports media and journalists are laden with a social responsibility towards football referees (Ricoeur, 1994) they never sought. Through a detailed analysis of media archives, we have tried to see which public image can result under such circumstances in which a social group hands to media themselves its fate in the public debate.

Results

Refereeing decisions in sport have always been hot topics, but TV broadcasts and imaging technology in football coverage has enabled journalists to shed a different light on referees. The multiplication, sophistication and scope of modern imaging techniques in football stadia have resulted in a focus on referees' mistakes and liability. It appears that when a social group withdraws itself from the public debate, it does not disappear from it. Media fill the void of its non-participation. If these media do not care about the social responsibility involved in the process of information, they can do harm without any opposition. In the case of French football referees, it may be one of the causes of the reported surge of violence directed against them, as well as at the origin of the decrease in applicants for the job. Far from being mundane, the case of French football refereeing is an example that freedom of information must be equally shared to be useful, or come with "ethical" strings attached.

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Keywords: *Media, responsibility, image, authority, sports*

Moving toward Global Information Literacy (IL) 3.0

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Web 2.0 made global collaboration possible. Web 3.0 offers the promise and peril of greatly enhanced personalization by making connections and inferring meanings from user-generated data that may include digital identities (Barassi & Trere, 2012). The Association of College and Research Libraries (ACRL) Virtual Worlds Interest Group is exploring global collaboration with colleagues in many countries to share current research and practice on issues of digital literacy, 3D models for ILI, professional development and networking through online tools, evolving into a personalized semantic web.

This poster shares innovative developments in Web 3.0 information literacy. In October 2012, a panel on information literacy around the globe was held in Second Life, jointly sponsored by ACRL and the UK Centre for Information Literacy Research. Panelists from the UK, Poland, Chile, Greece, and the US expressed common concerns about digital information literacy needs, 21st century learning skills, such as digital citizenship, and the frequent use of one-shot sessions to address these needs. In addition to expanded global teaching and learning opportunities 3D virtual worlds also offer the ability to express IL needs and standards using creative visual models. For example, a 3D model of the Big Six (Eisenberg & Berkowitz, 2013) allows individuals, as avatars, to "walk through" the steps for problem-solving and research in a simulation of the process. Through visualization and 3D simulation, learners are immersed in a deeper level of critical thinking, analysis, and evaluation of information. VWs offer these kinds of simulated face-to-face learning and networking opportunities without the need to travel.

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Keywords: *Global collaboration, international information literacy, Web 3.0, emerging technology, virtual worlds*

New Research Reveals Intensified Information Literacy Activities on the Web by US Academic Libraries Since 2009

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The Web is an ideal place for advertising and possibly teaching information literacy (IL). However, it has been a slow process for academic libraries to realize the full potential of the Web to advertise and deliver IL services. This presentation traced the IL-related activities on the Web by US academic libraries since 2009 by drawing data from two studies. The first study was done in 2009 which investigated how 255 US academic libraries in a random sample promoted and taught information literacy on the Web (Yang, 2009). The data was collected in 2009, but findings were never published. The second study was conducted in 2012 and was similar in scope to the 2009 one. It used a random sample of 265 academic libraries (Yang & Chou, in press). This presentation compares the findings of the two studies and discusses the changes on the Web since 2009.

The research methodology includes the generation of random samples based on Peterson's Guide to Four Year Colleges in 2009 and 2012. The author scanned Web sites of the libraries in the samples and recorded information-literacy-related activities using Excel. The final data is calculated and compared wherever possible as the two studies had similar goals and recorded the same data.

For one thing, academic libraries certainly intensified their promotional activities for information literacy on the Web. Among many other interesting findings, the comparison revealed that in 2009 only 20% of the academic libraries studied advertised library instruction as a service on the Web vs. 65% three years later in 2012. The term "information literacy" was not used that often in 2009. Only about 6% of the libraries actually mentioned the term for various reasons on their websites. In 2012 the usage of the term "information literacy" became more popular. About 33% of the libraries in the sample actually used it and some (24%) even made an effort to explain the concept or link (16%) to the Information Literacy Competency Standards for Higher Education (Association of College & Research Libraries, 2000). The presentation also covers how the academic libraries in the samples taught information literacy on the Web through tutorials.

If possible, the presenter will also look into the correlation between the size, type, highest degree offered, and entrance level of difficulty of colleges and universities and their IL activities on the Web in one or both studies. A discussion will follow to analyze the lessons and possible improvement for promoting and delivering IL for the future. The aim of the presentation is informational. Knowing the present not only helps people see the future, but also change the status quo for a better future.

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Keywords: *Information literacy, library instruction, the Web, the Internet, academic libraries, the United States*

“This I Believe”: Introducing Information Literacy Skills to Turkish University Students

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This poster explores two different teaching methods used to introduce information literacy skills to Turkish university students at Atatürk University in Erzurum, Turkey. It will make recommendations to conference attendees on fresh developments and innovations in information literacy instruction. In one situation, second-year students studying English Language and Literature were taught information literacy skills in order to create and present lessons to their peers on multicultural American authors. Students used information literacy skills, specifically finding, analyzing, evaluating, and using information, to create content for a multi-media presentation. A second activity, inspired by the “This I Believe” international organization, taught first-year English Language and Literature majors information literacy skills by requiring them to follow the writing process (i.e., brainstorming, outlining, prewriting, writing, editing) with the goal of creating a three-minute classroom presentation. Students developed critical thinking skills by identifying, examining, analyzing, and synthesizing the significance of one event in their lives (e.g., answering the question: “How am I different because of this event?”). The poster will present both the methodology and results of these activities.

Keywords: *Information literacy, university students, Turkey, writing process*

Case Studies in Information Literacy for Nurses and Nursing Education

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The nursing profession is not immune to the burgeoning amount of information and information technology. Nursing educators have the responsibility to ensure that nurses and nursing students are capable. The objective of this poster presentation is to demonstrate interprofessional collaboration between librarians and nursing faculty to address the information literacy and information technology needs of nurses and nursing students. Information literacy is defined as the set of abilities requiring individuals to recognize when information is needed and have the ability to locate, evaluate and effectively use the needed information (American Library Association, 2000). Three case studies in nursing and nursing education will be described to illustrate the application of the American Library Association's (2000) Information Literacy Competency Standards for Higher Education. Interprofessional curriculum development, particularly nursing and library sciences disciplines, addressing basic information literacy will be presented in the first case based on the first two standards: 1) the literate nursing student will be able to determine the nature and extent of the information needed and 2) the information literate nursing student will be able to access needed information effectively and efficiently (ALA, 2000). The collaboration between faculty and librarians is invaluable. Librarians are uniquely qualified to assist students to develop their information searching and retrieval skills (Morgan et al., 2007). The next case will demonstrate curricular assignments and evaluation metrics that advance information literacy, information technology fluency, and critical thinking skills for nursing students addressing patient care needs concentrating on the final three standards of: 3) critically evaluating and incorporating information in his or her knowledge and values, 4) uses information effectively to accomplish a specific purpose, and 5) understands the economic legal and social issues surrounding the use of information and accesses and uses information ethically and legally (ALA, 2000). The 3rd case will describe the collaboration of practicing nurses with a librarian to improve their evidence based practice initiatives in a community based health care organization. These cases demonstrate the synergy created when nurse educators and librarians work together to enhance nurses' and nursing students' Information Literacy. This synergy helps by providing information literacy means to combat the exponential growth in information available to nursing students, clinicians, faculty and patients that has created challenges for students, faculty and clinicians alike (Turnbull, Royal & Purnell, 2011).

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***Keywords**: Nursing education, information literacy, information technology fluency*

Digital Inclusion in Public Libraries

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The main issues that prevent adults from using the internet are ICT knowledge and motivation barriers. One of the main objectives of public libraries, as a public service to citizens, is to guarantee access to information, particularly to vulnerable groups. In order to do this, public libraries must provide computers and Internet access, but also, develop anti-exclusion strategies and teach people basic Information Literacy skills. Local libraries in Huesca (Spain), have designed a Strategic Plan for Digital Inclusion (2010-2013). This Plan provides public library users with a digital inclusion itinerary including training activities, workshops, meetings, accompanying measures and the possibility of getting the ECDL certificate.

Digital Inclusion: Proposals and Actions

Since 2010, we have set up several actions in order to help vulnerable groups acquire the basic skills to enable them to participate actively in social, cultural and economic fields. These actions are:

- Senior Citizens' Network: Weekly workshops for over 60's to learn to use technology that allows them to communicate their experiences.
- Conect@: Basic training on ICT and Internet skills. The main goal is to learn to use a word processor, Windows, Internet and email.
- Internet for life: basic training on the Internet mainly searching for information and email.
- ICT wednesday: Information Literacy workshops. Learning how to use different information in different ways: health, electronic administration, information search, educational resources, etc
- Emple@: Weekly workshop in collaboration with Local Employment agency to teach basic skills such as writing and sending a CV and searching for jobs independently
- Ecdl Exam offers people the opportunity to evaluate their computer and Internet skills.

Community Involvement

The multi-sector dialogue or "digital solidarity", as mentioned in the World Summit on the Information Society (Tunis 2005), is an essential element in Information Literacy programs. Private companies, associations, etc. are involved in our Plan. The most relevant partnerships are:

- European funding: Urban II Community Initiative (2010-2013)
- Local government of Huesca: Culture, ITC, Youth and Social Services departments;
- Other public administration: Local employment agency, Local Adult Education Centre.
- Associations: Disabled, Immigrants and senior citizens associations.
- NGOs: Cáritas (the nursery service is managed by immigrant women).
- Computer companies: they offer special discounts on computers.

Accompanying Measures

Accompanying measures have been implemented to help achieve the objectives. These measures contribute to removing barriers to social inclusion for vulnerable groups successfully.

- Nursery service (managed by immigrant women from the NGO Cáritas program);
- SOTIC: Advice Service on ITC (6 hours per week)

Evaluation and Impact

Huesca public libraries have their annual evaluation plan to measure how users are able, to manage the information in social, education and employment fields independently after participating in a training activity. In addition, we participate in the European Mireilla program to measure the Impact of e-Inclusion Actors in Europe.

Keywords: *Digital inclusion, digital literacy, community involvement*

Information Literacy Skills of University Students in Hungary

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In Hungary information literacy is not really manifest in public education and higher education programs. Education policymakers are focusing on the problems of digital literacy, and do not take into consideration, that it is necessary to have much broader information competencies in order to survive in the 21st century. Students come to higher education with drawbacks, especially regarding the key competencies (thinking, text comprehension and analysis, information management etc.). They also have difficulties with learning and self-evaluation. The reason is that they have no opportunities in high school to acquire basic information literacy skills.

At the University of Pécs, four surveys were taken between 2006 and 2010 in order to study the information literacy skills of the students at different faculties (Faculty of Health Sciences, Faculty of Law, Faculty of Economy and Faculty of Andragogy and Human Resource Management). The aim of the surveys was to get information about students' information searching strategies, favourite resources, information seeking, selection and evaluation methods, as a basis for a new information literacy instruction strategy.

The questionnaire consisted of 37 questions about demographic issues, general information management habits, and knowledge of scientific information resources. Analysis of the 667 answers revealed some really interesting findings.. Students looking for scientific information use electronic and printed resources equally, and books still play a major role. 62.5% use the Internet and 57% use books for gathering information for their assignments. They think that the Internet is the fastest and cheapest information resource, and the library is second. Internet searches usually start with search engines; then come the subject gateways, thematic portals and finally, personal recommendations.

Only 1/3 of the students apply information literacy competencies during their studies. They have very weak knowledge of professional information resources (e.g. online databases). Their main information resource is the Internet, and their main information retrieval tool is Google. They are not aware of the complex competencies of information literacy. Very often they ignore planning before beginning to work on an information solving problem. Only 60% of students evaluate the results, and about 30% is satisfied with the first 10-20 hits. It means that though the young generation has very good digital literacy competencies, they cannot solve scientific problems, if these competencies are not accompanied by all the skills of information literacy: recognition of the real information need, knowledge of possible information resources, professional information seeking methods, selection and evaluation.

Further research is necessary in order to create a national indicator system and strategy to improve information literacy in Hungary.

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Keywords: *Information literacy, higher education, survey, standards, indicators, Hungary*

Examining Public Librarians' Information Literacy and E-learning Attitudes: A Study from Iran

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The main purpose of this study is to survey the current situation of public librarians' information literacy and e-learning attitudes in Iran. The methodology utilizes a descriptive-analytical survey. Data was gathered through a researcher-designed questionnaire. The subjects are public librarians from Tabriz, Iran. The paper-based survey consisted of demographic information and measures of IL and e-learning attitudes. All items in the scales of IL and e-learning attitudes are measured with a 5-point Likert-type questionnaire, with 1 being "strongly disagree" and 5 being "strongly agree". All scales were validated by prior research studies.

Public librarians' IL is assessed using a revised IL scale which contains three sub-dimensions: information querying, information organisation and information evaluation. Also public librarians' e-learning attitudes are examined through the e-learning attitude scale derived from prior studies. According to that, the librarians are asked to identify their perceptions of the environment when they took e-learning, multimedia instruction, and instructor-led learning. These perceptions are investigated in the e-learning attitudes scale.

Results of the study will show public librarians' current information literacy situation and e-learning attitudes. Finally some solutions in regards to improving librarians IL will be made.

Keywords: *Public libraries, information literacy, e-learning attitudes, Iran public libraries*

The Impact of Epistemological Beliefs on Fostering Students' Information-Seeking Behavior

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Information-seeking behavior (ISB) or information problem solving is conceptualized as a complex cognitive process. ISB-related skills are proposed to play a crucial role in the self-regulated acquisition of knowledge in higher education (Joo, Bong, & Choi, 2000). Despite the importance of adequate ISB for studying successfully, a number of studies reveal that ISB skills among students are often poor (Maughan, 2001). Consequently, the incorporation of ISB skills training in university's curricula is recommended (Hepworth, 1999).

However, the acquisition of knowledge and ISB are influenced not only by particular skills, but also by individual attributes such as epistemological beliefs (EB). Studies show that students with more sophisticated epistemological beliefs are less likely to oversimplify complex issues, and to draw inappropriate conclusions as a consequence (Schommer, 1990). They are more capable of handling contradictory information (Whitmire, 2004) and more likely to judge the quality of information and its sources contextually (King & Kitchener, 1994).

Regarding these considerations, it seemed meaningful to examine the impact of EB on fostering ISB. For this purpose, a blended-learning training for the improvement of skills referring to ISB was developed and evaluated in an experimental study. It was examined whether (1) students with more sophisticated EB achieve better training results, i.e. larger improvements in ISB skills. Additionally, it was investigated whether (2) the incorporation of epistemological discussions into the training fosters the EB of the participants towards more sophisticated beliefs and (3) whether these discussions contribute to the success of the training, i.e. to more effective and efficient ISB.

Within a pretest-posttest experimental design, two groups were compared, each containing n = 30 participants. The training for both groups included basic principles of information science (e.g. open vs. hidden web), searching strategies and techniques, as well as bibliometrics. Additionally, one of the groups received an epistemological training aligned to discussing and reflecting principles of knowledge and knowing.

Changes in ISB skills were measured by a test of knowledge about information-search processes and a number of information search tasks. Levels of EB were measured by an epistemological questionnaire, developed by our research group. Previous examinations revealed acceptable internal consistencies (Cronbach´s Alpha > .70) of the questionnaire. The study is currently underway. Results will be presented and discussed.

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Keywords: *Information-seeking behavior, epistemological beliefs, blended-learning*

Turkey: The Reading Landscape, the Rare Species of School Librarians and Their Means of Survival

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Country and the Reading Profile

Reading habits are important indicators of general culture and the progress of a country. The Ministry of Tourism and Culture, in conjunction with the Libraries and Publishers Head-Office, published a research work about Turkey's reading culture. Only one out of four people have the habit of reading. If people are reading, they declare that they have developed their reading habits by themselves, and there is no indication of librarian impact (T.C. Kültür ve Turizm Bakanlığı ve Kütüphaneler ve Yayımlar Genel Müdürlüğü, 2011, p. 60-67). The number of k-12 schools in the country is 60.165 (Education Data, 2012).

School Librarians: Survey Results

We know that many schools do not have libraries and even if they do have a small library, they do not have a trained school librarian. Due to a questionnaire I designed and implemented in 2012, with 59 private school librarians, and one government school librarian, school librarians prefer to call themselves 'teacher librarians.' Most of them have pedagogical training. They teach many subjects and they do a lot of creative activities. But when it comes to faculty meetings only half of them are called on to participate, and they are not allowed to contribute to the curriculum.. Many of them have a separate budget, but they themselves are not in charge of it. 70% of them have written library policies. Their collections are satisfactory, with Internet access and multimedia areas. The collections vary between 6.000 to 41.000 print books with copyright dates of 1995-2008. Few of the school libraries have e-book collections. Web 2.0 usage is rare. The school librarians see as their most important role 'promoting books and reading', then, 'turning library usage into a habit', followed by 'teaching research techniques.' They try to teach information literacy by collaborating with teachers whom they know address the issues and the meaning of information literacy. But this kind of teaching only occurs in private schools.

The Need for Trained School Librarians

LIS education does not offer school library related subjects, including information literacy, with the exception of Hacettepe University. I must say that if there is no trained school librarian, then there is no school library. Promoting reading, supporting research and enhancing student learning and awareness are the main targets of school librarians. School librarians offer the best possible resources to their patrons, within limited budgets. There is much more than books in a school library; it is a hybrid environment where individual and group learning takes place. There is a very great need to teach information literacy to all school librarians and to all LIS students who are planning to work in this area.

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***Keywords**: Turkey, education, reading, research, school librarians, school libraries*

Information Literacy Centre: Development of Information Literacy at Masaryk University

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This poster presents a unique project, focused on the field of information literacy, and offering the opportunity to highlight the importance of information literacy in a tertiary education sector.

The project CEINVE – "Information Literacy Centre: Development of Information Literacy at Masaryk University" is based on successful information literacy projects and is among the most remarkable information literacy activities in the Czech academic environment. The aim of the project is to coordinate and unify all activities related to information education within Masaryk University, by creating a modern information literacy centre. The project expands and upgrades existing e-learning courses related to information literacy, and also provides support for all information-educational activities.

The key activities are divided into several partial goals. The main goal of the project is to innovate and expand the above mentioned e-learning courses - Course of Information Literacy and Creative Work with Information. Because of their universal content, these courses are open to all Masaryk University students. As an alternative to full-time on-line courses, face-to-face activities offer practical transfer of knowledge and skills not applicable for e-learning formats (brainstorming, mental maps, thinking huts, speed reading, creative writing, critical thinking etc.) That means, essentially, creative work with information and the use of these techniques in the study process and education.

An essential step in the project's implementation was to develop its own model of information literacy, which reasonably reflects not only current trends in the information society, but also provides a sufficiently general description of information interaction. The model describes seven areas that are needed for effective management of information literacy development.

- Define Information Needs - work with topics, ideas search
- Find Information - information sources and information searching
- Knowledge Organization - storing and structuring
- Analysis - pre-understanding, search context, interpretation, and finding connections
- Document Creation - audio, text, video and audiovisual
- Knowledge Creation - perception and learning
- Communication - clearly defined and anonymous recipient

This model is largely based on the traditional models of information literacy, but from its visual processing it is clear that the dominant portion is represented by the analysis itself - work with information.

The impact of all activities provided by the Information Literacy Centre is not only an increase in information literacy among students, but also in raising awareness of the issue of education in society.

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Keywords: *Information literacy centre, e-learning, tertiary education, online courses*

Information Literacy as the Prevention of a Misuse of Digital Footprints

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The poster introduces a work-in-progress. Its goal is to embed a misuse of digital footprints into information literacy instruction and call attention to educational possibilities of Czech libraries to improve safety of users in this field. Information literacy means effective living in information society so it also includes avoiding dangers in creating and using information. The poster shows this aspect of information literacy using some models and standards of information literacy, as well as positives and interest of Czech libraries to educate about this topic.

There are still new activities which strive to develop information literacy. This poster explains why courses developing information literacy should give significant attention to information safety issues and which of them should be emphasized, with stress on privacy and prevention of digital footprints. Reasoning is based on selected generally accepted standards and models, strategic documents and, of course, theoretical findings from the scholarly literature. A stronger connection can be found to many important models and standards, namely Big6, Fluency with Information Technology, Information Literacy Competency Standards for Higher Education, and NETS standards.

"Digital footprint" denotes data joinable with certain persons. One can defend against misuse of digital footprints either through prevention or, retroactively. The most important disadvantage of repression is the irreversible impact of some problems (e.g. cyber-bullying). Psychological prevention in the form of fear from law can prevent the attack even though its implementation may be problematic. The problem with technical solutions is that it is always possible to bypass them and those protected may attempt to gain access to the blocked content. Education improves all the preventive or retroactive solutions. Education also supports safer behaviour, the best possibility to avoid the user putting her/himself in danger. Libraries have great potential to help with this, based mainly on well-established information education, a thick network of cooperating libraries, advantages of informal education and working relations with local schools.

The theoretical situation that looks good needs to be accompanied by and compared to real situations in libraries. Two surveys were made in August 2011 and January 2012 to describe education about information safety, privacy and digital footprints in Czech libraries, and librarians' interest in improving the situation. The first survey had 147 complete and 63 incomplete responses from librarians. The majority interest in the topic was clear, but librarians often did not know how to go about it. They wanted to change this and they even suggested possible areas of cooperation. The next survey had 127 responses, each from a unique municipal or regional library. Librarians showed interest in their own development, in order to know more about information safety, mainly, privacy on the Internet, and also in some methodical materials to educate users in this field. The theory and description of the environment of Czech libraries is supplemented by an example of learning in one area of information safety, which is a part of an educational cooperation of public library and the primary school in Polička (small town in Czech Republic).

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Keywords: *Digital footprint, education, information safety, libraries, privacy*

Serbian Library Journals and Promotion of Information Literacy

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Although Serbia is making significant efforts to develop the information society, the results achieved are far from satisfactory. Research indicates that in Serbia 43.7% of the population (more than 3 million people) have never used a computer, and that 54.1% (nearly 4 million people) have never used the Internet. The data are worrying, therefore rapid and efficient development of the information society and information literacy in Serbia requires full engagement of the community and all the relevant factors. The author discusses the position and role of libraries and library journals in this process and emphasizes the crucial role of schools and libraries in development of information society and the need for establishing a good institutional and legislative framework that would allow them to give their full contribution. In doing so he refers to good practice in other European countries and the United States.

Analyzing *The Strategy of Information Society Development in the Republic of Serbia* we notice that libraries are not mentioned in the text when it comes to legislative framework, the national IT infrastructure and e-learning. In assessing marginalization of culture and libraries in this document, we refer to the assessment of other researchers and authorities. We highlight this *Strategy* because it is a strategic document that defines the overall institutional and legal framework for the development of information society in Serbia.

Professional librarians would have to emphasize this problem very decisively and offer certain solutions. Good media for that are library journals (and library websites) because they are read widely are relatively numerous, and are well received in the professional community. However, according to our research, the percentage of articles on information literacy published in the last decade was low (we analyzed thematically all the articles in five leading scientific and professional library journals published in Serbia during this period). The library journals should deal with information literacy and issues related to the development of the information society to a much greater extent because that is of vital importance for the development of society and librarianship at the global and national levels. They should offer theoretical basis and examples of good practice in the country and abroad and thus give librarians required knowledge and information, and help them to fight for a better position in the information environment and the process of development of information society in Serbia. The primary responsibility lies with editors of these journals.

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***Keywords**: Information literacy, information society, library, library journals, Serbia, EU, USA, development strategy, the institutional and legal framework*

Reflexive Parasocial Relations and Creative Internet Activity as MIL Indicators

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Nowadays, in the era of digital technologies, parasocial relations have turned out to be common (indispensable) elements of our everyday life. A virtual hero created by mass media becomes a part of person's social relation diversity, especially in reference to the youth. The abovementioned virtual hero can cause a kind of emotional affinity and friendship to some extent. The depth of parasocial relation is defined by reflexivity forms (situational, affinity, identity). The main task of this research is finding the connections between parasocial relations and creative Internet activity as MIL indicators.

The method of mass-survey for MIL of the population of Ukraine was applied. 1997 adults, 399 schoolchildren (14-17 year olds), and 410 university graduate students were interrogated in 2009-2010 within the frames of the all-Ukrainian survey for comparative analysis of media culture. The quota sample was identified by gender, education level, urban/rural home place and region of residence. The methodology of mass-survey for rating parasocial relations (Hartmann, 2008) was adapted.

The results of the survey revealed negative modality of the situational level of parasocial relations at 32% of high school students, 30% of schoolchildren and 30% adults. The index of positive modality of the asocial affinity is much lower – 11%, 15% and 18% respectively.

Thus the existence of inverse correlation between parasocial relation and Internet creativity is proved. Positive modality of parasocial relations (situational and affinity levels) occured at least half as often in the case of respondents who have a blog or a personal web-page. The direct connection between positive modality of parasocial relation of the youth and willingness to engage in ilm-making was revealed.

The conclusion is that the peculiarities of parasocial relations should be taken into account when implementing media education programs for teenagers and adults. Recommendations for an experimental media education project were made. The project was approved by the Ministry of Education and Science, Youth and Sport of Ukraine in 2011 and consequently launched at 113 schools, 5 universities, 7 postgraduate pedagogical institutes.

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Keywords: *MIL, media education, parasocial relation, reflexivity*

Information Literacy of Public Health Students in Brazil: A Cross-sectional Study

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Introduction

We believe Information Literacy (IL) has direct implication on the quality of academic production. According to Alpi (2005), the Public Health (PH) field requires particular search expertise. The objectives of our research was to describe the Information Literacy (IL) of students entering a master and doctoral program on PH and investigate differences in their background regarding previous undergraduate course areas in order to plan for specific training.

Subjects and Methods

A cross-sectional study was conducted in 2009-2010 at the *Escola Nacional de Saúde Pública, Fundação Oswaldo Cruz*. A validated questionnaire (Martinez-Silveira & Oddone, 2008) was sent by e-mail to 321 newly incoming PH students. Descriptive analysis included demographic and academic data. Chi-square analysis took into consideration undergraduation area, classified as "Biology and Health sciences" (BHS) or "Other Areas of Undergraduation" (OAU). Analyses were performed with SPSS (17.0). Research was approved by the Ethics Committee.

Results and Discussion

Eighty-eight (27.4%) students volunteered to participate. Age range was 22 to 59 years (median 31, mean 34.7, SD 10.4); 22% were male and 78% female; 66% were master and 34% doctorate students. 95.5% had Internet access from home. Twenty undergraduation courses were identified, 70% were from BHS and 30% were from OAU. Regarding demographic data, participants were similar to the overall incoming students and BHS students were statistically similar to those from OAU. 51.1% make use of Google and similar search engines when seeking scientific and technical information, 50% reported difficulties choosing the appropriate search strategy, 18.2% use medical subject headings and 14.8 use advanced tools. Two thirds reported the need to improve search strategies. 95.5% search the literature without expert assistance and reported having learned the techniques on their own, that is, without formal training. Statistical analyses identified significant differences between students coming from BHS and OAU courses. Regarding bibliographic databases as Medline, Lilacs and Embase, OAU students used them less frequently. We believe this is due to the fact that they index predominantly health and biology journals. Participants coming from BHS courses visited libraries in greater proportion when seeking for documents, while the ones from OAU courses preferred those available as free text. This research lacks methodological elements that could explain these differences. We accessed the IL of PH master and doctorate students newly incoming at ENSP-FIOCRUZ. Their overall performance was poor considering what is expected for a higher education clientele. They would certainly benefit from formal IL training, particularly OAU course students.

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Keywords: *Information literacy, public health, information seeking behavior*

Science Portal for Ontario Teachers: Enhancing 21st Century Academic Literacies in Secondary School Science Students

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This poster presents a unique model of academic library outreach to upper year secondary school science teachers that supports the development of 21st century academic literacies, enhances the ability of their students to make successful transitions to higher education, and lays the foundation for lifelong learning. Drawing on their respective expertise in information literacy, academic writing, learning, and science education, four specialists from the *Learning and Curriculum Support Team* at the University of Guelph, Canada, collaborated on the development of research-based teaching aids that can be used by any science teacher in Ontario. Intimately tied to the provincial curriculum guidelines and organized by science subject, the suite of downloadable modules requires students to find and analyze scientific journal articles. Rather than requiring the use of databases that are specific to the teachers' and students' own contexts, the modules point students to the *Directory of Open Access Journals*. As a result, students in any school with Internet access are able to retrieve scholarly scientific literature. The teaching aids and links to additional information and assistance are accessible through "S.P.O.T." (Science Portal for Ontario Teachers), a portal on the university library's website http://www.lib.uoguelph.ca/first/resources_for_ teachers/spot/index.cfm/.

The usefulness of this model of academic library outreach and academic literacies support is not limited to Ontario secondary school science teachers and students. Many options exist for customizing the modules to reflect the language, content and learning objectives of science curricula in other academic systems. Nor are the modules relevant only to upper year secondary school students. In their own work with students at the University of Guelph—particularly those who are just beginning their careers in higher education—the author and her colleagues regularly build on the content of the science portal's research and writing modules, and refer students to the same tutorials on academic integrity, time management and university learning.

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Keywords*: Academic library outreach, teaching aids for high school science teachers, transition to higher education, information searching, academic writing, web portal, open access*

Innovations in Information Literacy in the Sciences: Embedding an Electronic Journal Project

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This poster presents a unique model of embedding information literacy, academic writing, critical thinking, and other academic skills into a first-year, undergraduate science course, that gives students the authentic experience of the scientific communication process, and enhances their potential for success.

The Dilemma

Most academic librarians and faculty share a concern about our students' inability to identify appropriate information sources, critically evaluate the information they retrieve, and use it effectively. Similarly, we agree that students need to learn to write well (Emerson, MacKay, MacKay, & Funnell, 2006). This is true across all disciplines but is particularly true in the sciences where writing research-based papers is not a usual requirement of the undergraduate curriculum.

The Electronic Journal Solution

At the University of Guelph, Canada, faculty members in the College of Physical and Engineering Science took a fresh approach to the development of their new undergraduate program in nanoscience. Recognizing the need to be deliberate about fostering the development of knowledge, skills, and attitudes that complement the discipline-specific objectives, the scientists responsible for designing the introductory course welcomed the author to their team. As a specialist in information literacy (IL) training and liaison with the Library's writing experts and learning specialists, the author played a central role in weaving these skills into the curriculum—as co-designer of the course, a member of the teaching team, and the journal's Editor-in-Chief. Through the resulting multi-faceted, e-journal project, students have the true-to-life experience of writing for publication that fires their imaginations and inspires them to do their best.

Following the process of scholarly publication, students become researchers, authors, and reviewers for an electronic journal. Through appropriately-timed workshops (e.g., IL, academic skills, peer review), they receive just-in-time training, support and feedback. Rubrics for the assessment of the submitted manuscripts and for peer review provide students with more insight into what constitutes work that is below, meets, and exceeds expectations. Thanks to the open access software that drives the electronic journal, the instructors have an easy-to-use tool to manage the flow of documents between student authors, peer reviewers, and themselves.

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Keywords*: Higher education, transliteracy, scientific literacy, faculty-librarian collaboration, scientific communication process, authentic experience, first year experience, embedded librarianship*

Information Literacy and Cultural Awareness

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The purpose of this poster presentation is to share thoughts and ideas with librarians about how to create a successful course in information seeking for students from different cultures. It is important to raise the awareness of the implications globalization might have when teaching information literacy in a global context. This project started with the development of a distance course, *Information literacy and digital resources,* at Karlstad University for master students and researchers in developing countries. The course targets the concept of information literacy and its impact on research society. Different programs and movements that enable developing countries to gain access to scholarly information will be presented. The concept of information literacy and its importance to the research community in relation to the digital divide, i.e. the unequal access to ICT and ability to use the tools, will be highlighted.

Working with the course inspired us to deepen our knowledge in the field of information literacy and learning in different cultures. We have used a sociocultural theoretical perspective and Hofstede's cultural dimensions in order to pay particular attention to the cultural and social context of user education. A two-week field study was carried out at a South African University Library in October 2011. By investigating differences and similarities in approaches to user education and information literacy in a South African University context and paying particular attention to the cultural and social context of user education, several factors emerged which in interaction influenced user education. Our conclusion is that information literacy must be understood in the light of social and cultural practices, while at the same time keeping pace with the effects of increasing globalization and internationalization in higher education (Brooks, Donovan & Rumble, 2005; Dorner & Gorman, 2006; Hofstede, Hofstede & Minkov, 2010; Säljö, 2000).

One approach in the course is how information and communication technology (ICT) has revolutionized the way information is disseminated and communicated globally. Information technology presents an opportunity to share information and research in electronic form, but the technical means will not solve the whole problem. One must also have knowledge of how to use ICT, how to look up information and how to relate to it. Another approach in the course is information seeking and learning in developing countries, i.e. how information literacy is defined in a developing country context and how cultural awareness can improve information literacy education. The concept of information literacy is grounded in the western world. When teaching students from developing countries it is important to adjust the concept of information literacy to their specific cultural context. It is important to integrate understanding of how students learn in different environments and of how culture affects the way people learn. Equally important is to contextualize information seeking and learning within each culture and society. We believe that cultural awareness in information literacy education has received too little attention and that the contexts and social practices of the developing countries affect the ways in which information literacy is defined, understood and can be taught.

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***Keywords**: Digital divide, information literacy, user education, developing countries, cultural context*

Information Literacy of Public Health Students in Brazil: An Experimental Study

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Introduction

We consider that Information Literacy (IL) has a major impact on the academic development. This study builds on an earlier IL cross-sectional study of newly incoming Public Health master and doctoral students. According to our data and selected literature (Sathe, Lee & Giuse, 2004), we designed a short course on IL. We hypothesized that students attending the course would improve their literature search abilities on Medline/PubMed. The objective of this study is to evaluate course effectiveness.

Methods

We conducted an experimental study where participants (Ps) were assigned to Control (CA) or Experimental Arm (EA). The intervention consisted of an IL course work with theory and hands-on training, lasting seven hours. Sample size was calculated as CA=EA=24; n=48. Ps were assessed (A) twice, A1 and A2. A1 recorded overall baseline performance, previous to course work. A2 scheduled time differed for CA and EA. Ps at CA were assessed (A2) earlier, before course completion. While Ps at EA were assessed (A2) by the end of the course, after Medline/PubMed search session was given. A1=A2 consisted of six online exercises. Ps´ search queries were captured by PubMed´s History tool and scores assigned according to the Fresno Test (FT) (Ramos, Schafer & Tracz, 2003). We used FT´s Medline search scores 0, 3, 6 and 8. The studied parameter was the magnitude of the difference (MD): A2-A1 scores. MD values were compared with U Mann-Whitney test, with 95% significance level.

Results and Discussion

321 overall students, 33 enrolled, 31 assessed, CA=15 and EA=16. Women and master students were predominant in both arms. In the CA mean age was higher (37.6 years old). Both CA and EA scored low at baseline (A1). At A2, the highest possible score (FT=8) was observed in 12 EA Ps, and only in 3 CA Ps. The highest possible MD values (MD=8 and MD=5) were more frequent in EA Ps, while the lowest (MD=0) more frequently (n=7) in CA Ps. This could suggest an improvement in EA Ps´ Medline/PubMed search abilities, although the difference was not statistically significant (p=0.299). An insufficient number of Ps (n=31) may have limited our results. The proposed educational intervention where answers to online search exercises were captured and scored using a validated instrument showed an IL improvement in the EA. We believe this is a promising methodology to assess effectiveness of IL courses.

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Keywords: *Information literacy, public health information seeking behavior*

Classroom Teachers' Information Literacy Levels: The Hacettepe University Case

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Nowadays, the increase in the amount of information forces individuals to search, judge and access reliable information. Reaching the reliable information has become such an important concept that it is necessary for the individuals to become information literate during the first couple of years of their education. Educators have the biggest responsibility in creating information literacy programmes since they are the first guides in the lives of students. Thus, educators need to start their teaching career after gaining the information literacy skills. Therefore, the aim of our research is to determine the information literacy levels of the students studying at Hacettepe University Department of Elementary Education, and identify the elements by which the candidate teachers are affected most in terms of information literacy (i.e. describing the information needs, creating effective search strategies, using the electronic information systems, evaluating the data s/he finds, synthesizing and interpreting the data found). The scope of the study includes the 4th grade students from Hacettepe University Department of Elementary Education (n=120). Aldemir's (2004) "information literacy questionnaire" was used to collect the data. The questionnaire has 35 items testing certain information literacy-related topics such as describing the information need, skills of using electronic information systems, evaluating retrieved information etc. Candidates were asked to mark their scores for each item on a 5 point Likert Scale (1 = Very difficult, 2 = Difficult, 3 = Not sure, 4 = Not difficult, 5 = Not difficult at all). Some of the results found in the study are as follows;

- The average information literacy level of the teacher candidates at Hacettepe University Department of Elementary Education is 3.47, which is between "Not sure" and "Not difficult" levels.
- While the "synthesis and interpretation of the information found" element has the highest average (3.77), "using the electronic information systems" has the lowest one (3.13).

According to these results it can be said that, candidate teachers are not fully information literate. They need some additional training maybe with more target-oriented information literacy programmes.

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Keywords: *Information literacy, classroom teachers, candidate teachers, classroom teaching*

Marketing Information Literacy Skills: Insights from a Business Classroom

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Motivation is often a problem for librarians teaching information literacy skills to students. For students, a librarian is someone who can help them improve or finish a particular assignment. If business librarians are invited to a class to give a presentation, faculty often request a demonstration of databases to a class of bored students. The result can be shallow engagement. Some students are content with using rudimentary search skills in limited sources, as long as they get a B on their assignment. Business librarians have found that framing research and information literacy skills as job skills appeals to business students and students in other professional programs. It speaks directly to their reason for being in school, and positions them as their advocate and advisor. This can be broadened to appeal to students in the humanities as well, since most jobs ask employees to find reliable information.

Marketing information literacy as a job skill has three components. First, there is evidence that employers want information literacy skills from their new hires, even if they use different terminology. Organizations in the United States such as Alison Head's Project Information Literacy (2012) and the National Association of Colleges and Employers (2012) reveal in surveys with employers that the ability to find good information and to have skills beyond Google searching is very important from new hires.

Second, the research skills the librarian teaches and the databases used for assignments are useful in the workforce (Klusek, 2006). This argument is especially direct for business or other professional programs, since most of the databases libraries subscribe to are not exclusively academic. Students respond when told that familiarity with certain tools or methods of research can be mentioned on job interviews. Talking about subscription and fee-based resources used in workplaces is important, because students do not always realize they are not available on the open web.

Third, information literacy proficiency is a job skill because anyone can Google search. Unemployment is a major problem in most countries. Students are very interested in ways to distinguish themselves in the marketplace. If the only tool in their research toolbox is entering simple keywords into a Google search, why would an employer hire a business major? It is also important to reinforce the idea that discerning if information is reliable or not is an acquired skill that a librarian can assist in honing.

Faculty members also respond to the framing of information literacy skills as job skills because of the resulting improvement in student performance. In the short term, student engagement with the librarian and exposure to more advanced research skills can lead to better assignment results. Taking this approach increases student engagement with information literacy instruction and skills.

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Keywords: *Information literacy, business, student perception*

What is the Cost of Information Seeking on the Internet? Creating a Greener World by Improving Information Literacy Skills

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It is anticipated that the CO2 emissions, caused by Information Technologies (IT) related productions and consumptions will increase up to 3% of the global total CO2 emissions until 2020 (Mithas, Khuntia & Roy, 2010). On the other hand, if correct and efficient decisions and actions are taken and if environmental friendly IT solutions are used, it will be possible to prevent CO2 emission by up to 15% of today's emissions until 2020 (Boccaletti, Löffler & Oppenheim, 2008).

All individuals, especially the information professionals actively using these technologies and the academic circles, bear tremendous responsibility in decreasing IT-originated emissions and in building environmental awareness. Digital information and communication technologies and increasing rate of data usage, particularly in the higher education, requires huge storage/backup systems (Greenpeace International, 2011).

In order to create a sustainable and egalitarian development model, each individual must be aware of the environmental impacts of his/her daily activities. This awareness is indispensable in preventing the destruction of our world, where we live together which we share with all the other living creatures.

It is observed that in certain developed and developing countries, which are poisoning the world by carbon emissions day by day, works related with the creation/usage of "CO2 free" environment and/or technologies by strategies like "Green Campus", "greening ICT" are being accelerated in the recent years. Both as individuals as well as corporations and organizations, we must analyse to what extent we can decrease the CO2 emissions and do our part by developing strategies like Green Vision and Green IT.

One of the fundamental aspects of these strategies shall be to change the habits of all individuals, in particular information professionals, in using technologies. By increasing information literacy, we must change our information seeking behaviors and thus re-shape our "information consumption" habits. Knowing that each search we do on the internet corresponds to a certain CO2 emission at the data center of the service provider, can be the first step of awareness. Each unnecessary and/or unconscious search on search engines generates 0,2g CO2; multiplication of this amount with billions every day shows to what extent each IT user negatively contributes to the CO2 generation (Google Green, 2013). Knowing that the data centers, dubbed flueless information factories which are positioned on the "cloud" day by day, and are in reality huge "chimneys", may help us in changing our information seeking habits.

We can directly contribute to the decrease of CO2 emissions by enhancing our information literacy and by developing efficient information seeking skills thus by doing more accurate searches. In this way, information literacy can both allow us to use the tools more efficiently and can also contribute in polluting the world less.

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Keywords: *Information literacy skills, environment, environmental sustainability, green library*

A Pilot Study to Strengthen Information Literacy among Health Professionals in India

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Everyone needs health information but with the diffusion of information from various print, electronic and human sources its quality, authenticity and reliability has become a matter of concern for all, especially among the health professionals who need current information to provide treatment to the patients. Therefore, in order for the librarians to assist students and health professionals in a better way, it has become essential to enhance their information literacy skills. Many medical school libraries in the US, the UK and other European countries have well-defined teaching curriculum for students to train them on various aspects of information literacy, and have designed online tutorials to enhance information skills. Though in India there are large numbers of government and private medical colleges offering undergraduate and postgraduate medical degrees, very few of the medical colleges have considered information literacy as an important aspect of the curriculum. In our studies of various medical library websites and searches on the Google, PubMed and IndMed, it is noticed that this topic has received little attention in India amongst medical librarians and medical professionals. Also, it is observed from entry register record and our personal observations that there are fewer visitors to physical libraries, few students attend library instructions/orientation programs and there is less use of valuable resources. Therefore, this study becomes crucial to enhance the library resources usage and to raise interest and improve information literacy skills among the students and health professionals.

This paper is based on a pilot study that was conducted in July and August 2011 through an online survey. The questionnaire was designed using Kwik survey and the link was sent to the Medical Education Unit (MEU), a Google group. This group constitutes of over 2000 members that include primarily medical educators as well as students, scientists, etc. The survey consisted of a set of twenty questions that investigated and analyzed the current attitudes and practices of medical professionals when they search for health information. These were assessed on the basis of awareness about resources and services, their search skills, search strategies, knowledge, and desire. Since it was the first time such a survey was conducted there were 28 respondents to the survey. The main findings of the survey were as follows: (i) medical professionals stated that their first choice to access to health information is the Internet and very few stated that they visit the library or use library-subscribed electronic resources; (ii) they use library catalogues, union catalogues, consortia or interlibrary loan/document delivery services the least; (iii) they have a high understanding about open access, institutional repository and high impact journals; (iv) many of the respondents are unable to conduct advanced database searches; (v) medical professionals do not ask for assistance of librarians for their research work. They also stated their difficulties and expectations from medical librarians. The overall result of the study shows that there is a need to address their problems and, as suggested by many, there is a need to develop guides and incorporate training to enhance the level of information literacy skills. It concludes that with the support of faculty, librarians' information literacy curriculum for the students and health professionals must be strengthened and integrated for improved research and career advancements in medical sciences.

Keywords: *Information literacy, health information literacy, health professionals, library and information professionals*

Autopilot or Copilot: Guidelines to Guide

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The University of Bologna is ancient and big. Its library system counts more than 100 libraries throughout 5 cities. The IL is carried out voluntarily by several librarians and supported by the workgroup "User training" which the authors, volunteers as well, belong to. Currently the group has the goal of improving the framework of the existing training initiatives in order to achieve a higher standard of training services which are shared and assessable, as well as other services. Ultimately it seeks to draft guidelines for all the Athenaeum. Indeed the idea is that, if there is a common line to follow, everyone can save time, avoid mistakes and share good practices, because it is better to follow a well trodden track instead of an unknown path.

The goal is to support students in their training process and, since the University is now investing money in plagiarism systems which are more punitive than educational, to exploit the chance to become a driving force for changing the institution in which the group operates towards a community concept rather than an individualistic concept Clear, useful and light guidelines are supposed to act a bit like the yeast that raises all the dough, not just part of it. The risk of dispersion and vain effectiveness may be avoided through pragmatic guidelines easily available through different types of academic structures and scientific disciplines, suitable to help colleagues cooperating in a real best practice system from inside.

One possible consideration was implementing an e-learning environment where students and librarians could work and interact using a platform for distance education like Moodle, but, after a feasibility study, the project proved to be ineffective because of little engagement.

Traditional guidelines have been selected, organized in a practical-operative style, possibly using the informal method of 'Question & Answer'. The chapters were first divided among the members of the group then, every subgroup became an editor of the parts written by others. It is still a work in progress and the choice of the format for these guidelines will be the next step: wiki?, hypertext? Surely a cross reference format that allows to recall key concepts and dynamic “read-what-you-need” practice. Below the designed chapters:

- Purpose of the guidelines.
- Audience: definition, needs.
- Contents: logical sequence of the teaching units and related topics according to the learning established goals.
- Methodology: interaction and cooperation, teamwork, problem-solving approach, laboratory activities.
- Organization: negotiation with the institutional stakeholders; marketing and promotion; logistics; timing; enrolment; accreditation.
- Learning assessment and evaluation of the course: ex-ante and ex-post evaluation; self-evaluation; satisfaction questionnaire.

The goal will be reached when colleagues will use the guidelines as an appropriate navigator able to suggest the best training methods, not replacing them but supporting them in the right place at the right time.

Keywords*: Guidelines, university, volunteering*

Next Generation Library Catalogues – Support for Information Literacy, Croatian Case

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The next-generation library catalogue, sometimes referred to as the Library 2.0 catalogue or "the third generation catalogue", provides its intended audience with a more effective means for finding and using data and information. The next-generation catalogue should serve as an intuitive entry point for library users to discover library content. As the part of the libraries' information literacy programs, the next-generation catalogue should be a tool designed to make it easier for citizens for find information, students to learn, teachers to instruct, and scholars to do research. Contemporary learning environments require students to have a variety of skills beyond those needed for being a successful student in the analog world. Information literacy standards, such as ACRL Information Literacy Standards for Higher Education, deals with evaluating information sources and addressing plagiarism and citation , among other things. Library resources, including online library catalogues, are considered trustworthy and credible. For that reason, OPAC tutorials should remain part of the libraries' information literacy programs despite the convenience and online availability provided to users by other freely accessible web services. To remain a prominent information literacy supporter, library catalogues need to bring new trends and old reliability closer together. Among the most prominent features of the next-generation catalog are a simple keyword search box (Google-like), enhanced browsing possibilities, spelling corrections, relevance ranking, faceted navigation, federated search, user contribution, and enriched content, just to mention a few.

The purpose of this study is to determine which OPAC of the Croatian libraries offers more in terms of services and is more comparable to the next-generation library catalogue. The comparison will take place primarily in six areas: search, presentation of results, enriched content, user participation, personalization, and Web 2.0 technologies applied in Opals. Preliminary findings suggest that examined catalogues have implemented some features of the 2.0 catalogue. For example, catalogue of the Faculty of Humanities and Social Sciences Library, University of Zagreb, offers user comments and tags. It promotes user contributions by allowing sharing and/or recommending records on several social networks. This catalogue also offers relevance ranking to help users browse through the results quicker. Zagreb City Libraries OPAC shows similar features considering user-generated content. The plain bibliographic records, in this OPAC, are enriched with covers and annotations. Zagreb City Libraries also integrated into the catalogue lists of new, popular, and recommended titles. Crolist Union Catalogue offers relevance ranking but also clustering by type of the resource, author, language, publication year, subject, and availability. We can conclude that preliminary findings shows that new features are a great addition to the classical bibliographic data presented in library catalogues, but so far there are still many new possibilities which should be incorporated in the Croatian library catalogues.

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Keywords: *Next-generation library catalogues, Croatian libraries, Croatian OPACs*

Integrating Information Literacy into a Bachelor´s Curriculum

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How can information literacy be established as a learning goal in the curriculum for undergraduate psychology majors and implemented within a bachelor´s study program at a large scale university? The intention of the author was to introduce information literacy as a learning goal into the bachelor's degree program in psychology at the University of Vienna, starting in the winter term of 2010. The aim was to integrate the teaching of information literacy into the curriculum and to employ teaching methods that were of high educational quality, being interactive, differentiated for specific target groups and involving e-learning. The planning process started a year ahead of the start of the Bachelor's program. The stages of this project included establishing contact with the faculty, the development of possible learning objectives and specific content, and the discussion of the implementation with the faculty. Finally, new forms of instruction and learning had to be considered.

The author contacted the responsible faculty staff and presented learning objectives and content; the development of learning goals was based on international guidelines and best practice in the literature (e. g. American Psychological Association, 2007, Dunn et al, 2007; Landrum, et al, 2010). To allow for the interactive teaching of information literacy to the first-year students the lecture units are accompanied with homework assignments and combined with exercises linked to the learning content. Coaching with regard to the exercises and feedback to the homework assignments is provided by senior students, the "student advisors", from another course, the "Supervised Orientation Tutorium". The student advisors in their turn are guided by their course teachers. The "Supervised Orientation Tutorium" was developed by the Department of Psychology at the University of Vienna to improve first-year student support, because the staff-student ratio in the mass-study Psychology is very unfavorable.

The student advisors are trained in the previous semester's courses in theory and in practice. The course of the author focuses on scientific information retrieval and evaluation of information, supported by an e-learning platform. As "digital natives" usually have high technical skills using ICT but low information literacy, though attributing to themselves high literacy, their motivation to improve their competencies is low (Zemanek, 2012). Therefore, it is a challenge to foster their motivation. New forms of teaching and learning like self-evaluation and evaluation by peers, learning diaries and reflections on the content are used to promote the motivation of the student advisors and to increase their involvement with the course content. Feedback from the course participants shows that this works well for the student advisors but still requires further improvement for the first-semester students.

The major points for success were the development of clear learning goals, the provision of interactive and motivating learning methods and the use of a cascaded mentoring system to coach about 500 first-year students. The next step will be an evaluation based on the performance of the bachelor's degree graduates

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Keywords: *Information literacy, undergraduate psychology major, bachelor´s curriculum, student advisors, first-year students*

Information Literacy Instruction in University Libraries: The Case of Turkey

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The importance of information literacy as a survival skill in information age has long been discussed in the literature. It is accepted that individuals in an information society should be equipped with information literacy skills to be able to succeed not only in school but also at the work place and in daily life. All libraries, especially university libraries, play an important role in equipping individuals with information literacy skills. Today, creating and maintaining information literacy instruction programs is among the primary missions of university libraries (Rockman, 2004).

Although there is a large body of literature related to information literacy, those reporting on research conducted in Turkey are few and far between (Kurbanoğlu, 2004). In this poster, findings of a survey regarding information literacy instruction offered by university libraries in Turkey will be presented. There are 169 universities, 103 of which are public, in Turkey.

A web-based questionnaire was sent out to all university libraries in November 2012[*]. Response rate was 72% (122 libraries answered). Findings show that 86% of these libraries offer some kind of user training. The rest are the libraries of newly founded universities which either do not yet have students or adequate personnel and facilities. The main target group of instruction is undergraduate students (83%). Some of the libraries also offer programs to postgraduates (62%) as well as faculty (66%). While the majority of instructors are reference librarians and subject specialists, in certain cases every librarian, including the library director, takes part in teaching. Only 13% of libraries call their instruction program "information literacy instruction". "User education" and "library education" are more preferable titles. 76% of the libraries offer stand-alone one shot instruction sessions on request. These sessions generally last between 15 minutes to three hours. Only 5% of IL instruction is offered in credit or non-credit courses. 66% of libraries mixes theory with practice in their instruction sessions and only 26% offers web-based instruction. Content of instruction programs are quite traditional. Use of databases and library catalogs are the most frequently referred topics (83%) during instructions. This is followed by information sources (77%), library rules (73%), library system (70%), search techniques (55%), and Internet search engines (43%). Topics such as evaluation of information sources (19%), quotation and citation techniques (16%) are, despite their importance, among less popular.

In conclusion, the majority of instruction programs offered by university libraries in Turkey are traditional user education programs. Although several well meaning attempts are made by several institutions to convert them into information literacy instruction programs, spreading these efforts will require personnel, facilities, time and funds.

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Keywords: *Information literacy, information literacy instruction, university libraries, user education, Turkey*

[*] Survey is conducted as part of a student project. Following students should also be acknowledged for their help in data collection: Seda Arslan, Fatma Bakkal, Gözde Melek Çetin, Ceren Kaya, and Rana Süsal

Workshops

How to Identify and Analyze Instructional Problems

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Academic librarians in many countries spend a lot of time and energy trying to help people learn or improve their information literacy (IL) skills. Library users appreciate our efforts and often we seem to be successful. But what does it mean to be "information literate"? How do we know which information needs to address in order to help the most people in our institutions? Which learner populations should we help? How should we address their needs most effectively and efficiently? And how do our efforts fit within our institution's mission, as well as within a historical and cultural setting? This interactive workshop will focus on helping participants learn to identify learner groups that need information literacy instruction (ILI). Participants will also learn how to analyze the most critical information literacy (IL) instructional problems at their own institutions as one part of a six-step IL instructional planning process. We will discuss and participate in interactive exercises regarding means of defining IL for a particular institution, types of needs assessment, online tools for conducting them, and "environmental scans." Finally, we will work on IL instructional case studies, identifying questions to ask to aid in program planning. Participants will take first steps in applying this to their own institutions.

Topics

- Defining "Information Literacy" (IL) for your institution
- The IL planning process
- IL needs assessment
- Analyzing sample ILI problem case studies

Objectives

Participants will

- initiate a process to define "information literacy" (IL) for their own institutions
- undertake initial systematic planning for information literacy instruction (ILI) for their own institutions

Outcomes

Following this workshop, participants will be able to

- lead development of an IL definition for their institutions within a historical, institutional and cultural context in order to provide a meaningful basis for designing and developing ILI programs
- utilize initial steps in a six-step planning process for ILI programs in order to provide a systematic structure for ILI program design and development
- develop and conduct ILI needs assessments in order to identify target learner populations and their most important ILI needs
- analyze ILI problems in order to identify questions to pose and areas to address during the ILI planning process

Target Audience

- Primarily, librarians, faculty and administrators in higher education institutions, though content may be adapted to schools and the workplace

Reference

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Keywords: *IL planning, IL needs assessment, ILI problem analysis*

Measuring Information Literacy Competency: Evidence-Based vs. Perception-Based Data

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Objectives of the Workshop

This workshop intends to explain some methodologies for measuring competency in information literacy among students, in particular, university students. It examines the meaning of 'competency' and 'information literacy competency' It highlights the differences, advantages / disadvantages between evidence-based and perception-based data that can be used to measure competency in information literacy among students.

Outcomes of the Workshop

At the end of the workshop, participants will have a better understanding of evidence-based data to be used to measure competency, in contrast with self-assessment or perception-based survey data. They should be able to apply appropriate techniques in measuring Information Literacy competency among specific target groups.

Topics of Discussion

- The meaning of 'Competency', and 'Information literacy Competency'
- Evidence-based Data versus Perception-based Data
- Advantages / Disadvantages of both types of data
- Samples and exercises using both types of data

Content of the Workshop

The workshop will begin by establishing participants' understanding of the word "*competency*" and "*information literacy competency"* before it proceeds to examine methodologies for measuring the IL competency. Participants will be guided to discuss few samples of data that can be used to measure IL competency and identify the type of data that are evidence-based and perception-based. Various exercises will be used to engage participants in distinguishing between evidence-based data and perception-based data in measuring competency. Participants will also examine and comment on samples of previous works related to IL measurement available from published literature and online, so that they become more aware of advantages / disadvantages of both types of data. They can propose their own instrument for measuring IL and solicit comments from the facilitator and other participants.

Delivery Approach and Duration

The workshop will be interactive, with opportunities for questions, discussions and comments by participants. A minimum of three hours should be allocated for the workshop.

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Keywords: *Measuring information literacy, evidence-based data, perception-based data*

Health Tom Tom: Engaging Librarians for the Promotion of Health Literacy

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Objective

This workshop is intended to increase awareness of health literacy, information literacy and health information literacy, and their interdependency, to promote the development of collaborative initiatives among librarians and health experts. The choice to focus on health helps promote information literacy at large because health is a subject of wide interest for both individuals and society, and e-health information literacy becomes more and more a strategic tool to support informed citizenship within Europe and beyond. Special focus on cancer information will be provided.

Background

The idea for the workshop is primarily based on a previous successful experience realized by the National Institute of Health in Italy (ISS), within the European project NECOBELAC (2009-2012) which developed and implemented a two-level training strategy to promote Open Access publishing in public health.

Outcomes

Create major awareness of health information literacy among librarians and provide hints and tools to implement best practices at local levels, thus contributing to improve health information literacy among students, families and the general public. Participants will gain major awareness on the availability and use of online cancer information.

Target Audience

School, public, medical and academic librarians.

Organization of the Workshop

"Health Tom Tom" presentation (60 minutes): The first part of the workshop regards presentation of the health information literacy initiative "Health Tom Tom", promoted by the ISS. The initiative envisages a capacity building program for the promotion of health information literacy, based on two levels of Events (E1 and E2). The first level (E1) involves librarians and researchers in the field of public health; the second level (E2) involves librarians to organize different types of events for the promotion of health information literacy, addressed to different targets. E2 events can be represented by meetings, exhibitions, science cafés, etc. to be organized in public and school libraries, city parks, shopping malls, etc. Specific questions will be asked to gain more information about participants' expectancies and address specific topics according to their interest. A special focus on cancer information is envisaged thanks to the participation of an international expert who will provide an outlook of available information and will answer questions on specific topics.

Group work (45 minutes). The second part of the workshop actively involves all participants in group work activity concerning the organization of "Health Tom Tom" Events. It will include informal discussion of the main topic and the drawing up of a program for the realization of "Health Tom Tom" events at local level.

Presentation of the group work activity and final discussion (45 minutes). The third part of the workshop is focused on the presentation and discussion of the results of the group work. It is intended to create major awareness of health information literacy and allow participants to implement their own "Health Tom Tom" initiatives at local levels.

Keywords: *Health information literacy, capacity building, health promotion, cancer*

From Information Literacy to Mobile Information Literacy: Supporting Students' Research and Information Needs in a Mobile World

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Hyper-connectedness – the state of being always on a smartphone (Saylor, 2012) – is quickly becoming the norm for today's youth. Smartphones (iPhone, Android, Blackberry, etc.) and tablets (iPad, Kindle Fire, etc.) are already ubiquitous on many college campuses. In this workshop, participants will be introduced to theoretical frameworks of mobile learning, mobile literacy, and mobile information literacy, and their implications on teaching in higher education. Through hands-on activities, participants will learn how to use mobile websites and apps. In the process, they will also discover ways to integrate mobile literacy into their existing information literacy courses, and explore the potential of dedicated mobile information literacy classes. This session will also use practical examples to demonstrate how to evaluate the authoritativeness of information from mobile website and apps.

Participants will Learn How to:

- Use mobile apps and mobile websites to access, retrieve and evaluate information
- Implement mobile websites and apps into teaching to foster an active and collaborative learning environment
- Assess privacy and security issues for mobile apps and websites
- Keep up with new apps and mobile websites
- Understand how to develop faculty and/or staff buy-in as well as training opportunities
- Recognize how mobile technologies can support academic research and scholarship.

Participants attending this session are strongly encouraged to bring their own mobile devices (smartphones, tablets) to actively participate in the workshop.

Outcomes

Expect to leave this workshop with the concrete tools, knowledge, and the confidence to implement mobile information literacy instruction at your institution.

Target Audience

People who are brand new to the topic as well as people with some experience in it, but who are looking to learn more.

Workshop Time

90 minutes.

Reference

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Keywords: *Mobile literacy, mobile information literacy, mobile learning, information literacy, academic libraries, libraries, librarians*

Learning in Action

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Since 1991, when Bonwell and Eison first popularized the idea of active learning, instructors have been experimenting with various techniques across the curriculum. According to Karshmer and Bryan (2011) "anything that students do in the classroom that goes beyond listening passively to a lecture can be considered 'active learning." From problem-based group projects to film viewing and discussion, from rapid response writing to teaching-to-learn; active learning takes on many different forms which can be used to engage students in their education. These activities provide students the opportunity to think and to act, honing their information gathering skills through hands-on practice.

Librarians are among those whose efforts can be significantly enhanced by abandoning the "sage on the stage" delivery method in favor of participation-driven exercises. The 2012 revision of the ACRL Best Practices guide's Pedagogy section highlights active learning as integral to a well-rounded information literacy program. Even Ross and Furno (2011) whose experiments with clickers in classrooms met with mixed results, assert that further research on active learning is merited and that, while it may not prove significantly more effective than more traditional techniques, active learning activities are a valid teaching tool.

Many students who are required to attend a library instruction session enter the classroom anticipating a stultifying lecture on a subject about which they already "know everything." Bell (2007) found that active learning techniques were one method of bypassing what he labels IAKT (I already know this). By engaging those students using active learning techniques, librarians can not only surprise the students into participation, but also get them to retain more than they would from a lecture session. Bell noted that relinquishing control can be risky depending on the current context and the students' background, but even in the event of poor results during a student search demonstration, the class "ultimately [has] a more powerful learning experience when their peers search the library database."

In this workshop, participants will experience a handful of active learning lessons from the perspective of the student, interspersed with discussion of the effectiveness of each exercise. Vocabulary brainstormers will compile lists of possible search terms to use for a research project; website evaluators will analyze "free" resources for validity and usefulness; Boolean logic calisthenics participants will demonstrate the ability to create complex search strings; and beginning researchers will refine broad topics into succinct ones.

Participants will leave the workshop with a set of new active learning techniques which they can apply in their own classrooms.

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Keywords: *Information literacy, active learning, student engagement*

Curriculum Mapping to Integrate and Communicate Information Literacy Learning

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Libraries can no longer rely on collections, ample study spaces, and conveniently located cafes as their primary sources of institutional value. As the educational roles of libraries continue to expand and calls for accountability with regard to student learning grow louder, the importance of placing the instructional work of libraries and librarians within institutional contexts grows as well. Input/output data regarding the number of sessions taught and the number of students reached can provide only partial insight into the impact that information literacy instruction has on student learning.

The curriculum mapping process can provide deeper insight into the impact of library instruction practices as well as provide direction for continuous improvement. For institutions that are articulating learning outcomes such as the Essential Learning Outcomes advocated by AAC&U's LEAP Initiative or adopting core competencies such as those articulated through the Bologna Process and the related "Tuning" Project, this workshop provides a method for analyzing curricular alignment. The workshop will be guided by a team of librarians at a large public research institution who developed a process to map the instructional efforts of their library to departmental and programmatic curricula within the context of a campus-wide effort to reform undergraduate education.

During this workshop, participants will engage in a series of case study analyses, discussions, and hands-on activities. Mapping templates will be provided. Participants are strongly encouraged to bring a laptop or other internet-enabled device. By the end of the session, participants will be able to: identify institutional learning outcomes that can be addressed by information literacy instruction; articulate a subset of those outcomes in a developmental context using performance indicators from the ACRL Information Literacy Competency Standards; create course and departmental/ programmatic curriculum maps that document current instructional efforts; analyze the maps to identify instances of opportunity and over-duplication; and generate an action plan for the local implementation of a mapping project.

This workshop will go beyond reporting the results of the project by helping participants develop the knowledge, skills, and approaches needed to undertake similar projects at their home institutions.

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Keywords: *Curriculum mapping, curricular integration, library value, continuous improvement, generic competencies, institutional impact*

Transforming Learning: A Professional Development Program

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The aim of the workshop is to demonstrate a professional development program that was implemented at Australian Catholic University (ACU) to promote and encourage professional and academic staff to take ownership of a new information literacy program, Leap into Learning (LIL). As a multi-campus institution, the workshop was a valuable solution at ACU to ensure the development and deliverance of consistent information literacy training to new students across all campuses and faculties. This model was successful in promoting the online information literacy program and establishing rapport and partnerships between academics, librarians, academic skills advisers and learning and teaching centre (LTC) staff. The workshop equipped library staff with the confidence to run similar workshops at their campuses for academics and professionals. All staff collaboratively developed a holistic information literacy implementation plan and contributed feedback on the working LIL prototype.

Outcomes of the Workshop

By the end of this workshop, participants will:

- Engage with other peers and develop an action plan for how information literacy initiatives at their institutions can be showcased based on the ACU online information literacy model
- Meet and collaborate with peers from other institutions
- Reflect on the use of the online information literacy program and apply ideas and strategies to their professional practice
- Be able to experience, engage and participate in a learning design which documents the process of professional development

The workshop will engage participants in setting expectations, brainstorming ideas, reflecting on best practice and designing an action plan that can be implemented in their own institutions.

Session Overview and Resources

The workshop will model the process of the professional development program used at ACU. This professional development program was an outcome of a learning and teaching grant that involved the library, academic skills unit, learning and teaching centre staff and academics to develop an interactive and engaging online information literacy program. An overview of the ACU online information literacy program will be provided, as an example of an initiative that needs to be promoted and implemented across disciplines for access by new students. This will be followed by a group activity where participants brainstorm expectations for the workshop. A handout will be given with scenarios that require participants to think of possible solutions and create an action plan for promoting and implementing the information literacy initiative at their campus or institution. An action plan sets out a sequence of steps that must be taken for a strategy to succeed. Participants will then share in pairs and re-group to brainstorm ideas. Reflections will also be collected throughout the workshop as a process for interacting and challenging perceptions of how information literacy can be promoted and delivered. Other resources will include a workshop program and suggested strategies checklist for implementation of the information literacy initiative.

Target audience

While the workshop will share information from an academic library perspective, it will assist colleagues from other sectors including public, special, and school libraries as well as individuals from non-library organisations. The session will also afford the invaluable opportunity to engage with libraries currently seeking ways to promote and gain support from staff for information literacy initiatives.

Participants are encouraged to bring mobile devices.

Keywords: *Best practice, professional development, faculty / library relationships, training the trainers, partnership*

Creating and Sharing Information Literacy Learning Designs

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This workshop illustrates how a digital tool, the Learning Designer, facilitates a new way of designing teaching and learning. It enables teachers to: build on the work of others, adopt and adapt learning designs, analyze and test their designs, and then share their own teaching ideas and experience using the tool. The Learning Designer is one of the outputs of a three-year research project[1], which investigated how to support teachers developing their design skills and knowledge in order to profit from the creative possibilities opened up by digital technologies. Evaluations from teachers using the learning design tool demonstrated that it helps teachers in all sectors of education. The Learning Designer tool is used across the world in the exchange of knowledge when delivering formal and informal "teaching." It is underpinned by a theoretically-informed model of learning and by empirical work with teaching practitioners, and uses Semantic Web technologies for developing this knowledge further (Charlton, Magoulas, & Laurillard, 2012; Zazani, 2012). The tool builds on the idea of teaching as a 'design science' and a wide range of research on learning design (Laurillard, 2012).

Intended Outcomes and Workshop Outline

Workshop activities: (i) Introduction to the Learning Designer (10 mins) (ii) Hands-on-activity enabling participants to experiment with adapting a design to: redefine some of the properties used in the knowledge base (KB); explore the advice and guidance; reflect on the environment's analysis of their design; annotate their design with comments on its potential value (45 mins) (iii) Development of a critique of community-owned KB for learning design (10 mins) (iv) Plenary feedback (15 mins).

Participants will need to bring their laptops with them and download the resource tool from the link given below[2].

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Zazani, E. (2012). *Who am I? My digital footprint*. Unpublished lesson plan will be shared during the conference.

Keywords: *Information literacy, learning design, CSCL, design knowledge & skills, professional development, semantic web*

[1] Funded by the ESRC/EPSRC TLRP Technology-Enhanced Learning programme

[2] http://tinyurl.com/ppcollector

Developing Profiles of the Information Literacy Professional #infolitpro

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Objective

The workshop objectives are to contribute to the project to develop profiles of the Information Literacy Professional (ILP), and for participants to develop more confidence in and understanding of the skills, etc., needed in an ILP.

Background

Growing numbers of library and information sector posts have "information literacy" in the job title, or information literacy development as a key responsibility. The IFLA Information Literacy Section has set up a new project **#infolitpro**, led by the presenter, which aims to develop profiles for ILPs, with input from library and information professionals in different sectors and countries. Profiles will identify relevant skills, knowledge and attitudes and link to formal documents (e.g. from professional associations) and practitioner accounts (e.g. articles, blog posts) which contribute to the profile and/or give practical examples. Project team members from different countries and sectors will lead development of profiles tailored to different national/linguistic contexts and different LIS sectors. The project website is at http://infolitpro.blogspot.co.uk/. Conferences such as ECIL are being used to gather information and ideas. A similar workshop was held at the UK's information literacy conference, LILAC (March 2013) with good feedback.

Equipment Needed

Powerpoint will be used for the introduction. Ideally, groups of participants would each have a computer with an internet connection, so that they could contribute directly to the project website and review material already collected (option 1). If this is not possible (option 2), the focus will be on participants reviewing draft profiles and identifying additions and changes to the drafts: in this case flip chart paper would be useful so that the participants can easily present their ideas to other participants at the end of the session.

Session Outline

The workshop leader will briefly present the background to the project, ask participants to form groups by sector and/or language, then follow one of two options, depending on the resources. Option 1 (networked computers): groups examine profile drafts and suggest additions, changes and new material, adding their suggestions and links directly to the website. For option 2, draft profiles and some examples of documents etc. already identified would be given to the groups on paper, and they would record their suggestions in writing. Suggested timing: Introduction (10 mins); Group activity (35 minutes); Summary and feedback (15 minutes).

Outcomes

The outcome for the session will be to improve the quality and usefulness of the profiles, using ideas and suggested material from participants. In terms of personal gain, the participants should gain ideas for developing themselves and other information literacy professionals (through gaining insight into required skills and knowledge) and about ways to present the value and role of such professionals in job descriptions etc. In terms of longer term outcomes, when the project is completed, it is envisaged that the profiles will be particularly useful for 1) Continuing Professional Development (planning provision and setting personal goals); and 2) Engaging with employers.

Target Audience

The target audience is anyone who feels they can contribute ideas and/or suggest further resources.

Keywords: *Professional development, information literacy, skills*

Training the Trainers: Faculty Development Meets Information Literacy

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Librarian and faculty collaborations are the most essential component of any successful information literacy program. How can librarians entice faculty to collaborate? A wide range of outreach strategies have been chronicled in the literature, including brown bag lunch discussions, faculty focus groups, librarian-faculty grants, librarian participation in faculty governance, and workshops. Collaboration can also occur as a result of accreditation or program review requirements. This session will focus on the method of hosting "train the trainer" workshops to present key information literacy concepts to faculty and stimulate ideas for embedding information literacy into the classroom. We will present a broad range of active learning exercises that can be adapted for "train the trainer" faculty workshops.

The first group of activities will focus on encouraging faculty to think critically about what "information literacy" means in their disciplines and in a broader context. Techniques include the presentation of key information literacy research findings, reflective discussion questions, polling, and an exercise that matches a set of tools or technologies with its corresponding "information literacy standard."

The second set of activities focuses on developing good information literacy assignments. A database of information literacy assignments will be displayed. Corresponding activities include using "best practice" rubrics or checklists to evaluate an assignment's effectiveness; worksheets that guide in the development of creating a new assignment; and instructions to carry out an assignment "from the student's perspective" in order to adapt or improve it.

A third set of activities facilitates curriculum mapping of information literacy opportunities within a Department, discipline, or program. A draft curriculum map template identifies the "high impact" courses within a Department, along with a list of potential information literacy student learning outcomes. Guided questions allow faculty to provide librarians with input to determine which courses have existing or potential components and assignments related to information literacy.

A fourth set of activities centers around a chosen information literacy outcome and asks faculty to select the "best evidence" from student work in their courses or discipline for meeting that outcome. Faculty and librarians collaborate to develop common language for how students can meet the learning outcome.

This 50-minute workshop is aimed at instruction librarians in academic libraries. Participants will learn about the "train the trainer" methodology in order to advance information literacy initiatives at their home institution. The workshop will teach methods for collaborating with faculty in order to empower them to integrate information literacy into the curricula. Participants will learn about a broad range of active learning exercises that can be adapted for their own "train the trainer" faculty workshops. The equipment requirement for this workshop is an instructor station with projection capabilities. Participants are encouraged to bring a laptop.

Keywords: *Teaching methods, marketing, active learning, outreach, academic libraries, faculty, collaboration*

Re-envisioning Roles: Building Partnerships and Blurring Lines to Create Learning

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Student development of selected higher order thinking skills outlined in the American Library Association's Association of College and Research Libraries' (ACRL) *Information Literacy Competence Standards for Higher Education* is best served by rich partnerships between librarians and teaching faculty. Too often librarians suggest that it's the role of the teaching faculty to help students become critical readers, adept at the synthesis of information sources and capable of recognizing interrelationships among concepts. Librarians cite concerns about overstepping boundaries between librarian-work and faculty-work and note that our teaching faculty colleagues have classroom opportunities that we lack, such as the ability to grade students' work. At the same time, teaching faculty may consign all information literacy (IL) instruction to librarians, make assumptions about the students' preparedness, and suggest that their expertise is in a subject discipline and not in teaching writing and research basics. Student development of some of the most complex and interesting performance indicators of IL can fall through the cracks. This workshop will challenge participants to address IL elements that fall into a no man's land between generally accepted roles for librarians and teaching faculty and call participants to partner to improve effective teaching and learning.

Objectives and Outcomes

Participants will engage in hands on activities and discussions designed to develop ideas for rich partnerships. Participants will be challenged to re-examine the traditional division of labor between librarians and faculty for fostering student IL. Classroom activities that might be used by both faculty and librarians and that foster selected higher order thinking skills outlined in the ACRL's *Information Literacy Competence Standards for Higher Education* will be modeled. Workshop attendees will participate in the classroom activities as students and will work in groups to consider strategies for making use of the activities at their home institution and in future partnerships.

Classroom activities will include flipping the classroom – requiring students to engage in parts of the lesson prior to the IL session and devoting class time to activities normally assigned as homework such as the critical reading and comprehension of articles – and the use of a synthesis matrix to highlight the connections between information sources and aid the integration of new information into the students' knowledge base.

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Keywords*: Partnerships, classroom activities, critical thinking*

Teen Design Days: Engaging Youth in Information Literacy through Design Thinking and Participatory Design

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Teen Design Days is an ALA award-winning methodology sponsored by Microsoft Global Community Affairs and the U.S. Institute for Museum and Library Services. It enables practitioners, professionals and researchers to work with youth around information literacy and other 21st century learning concerns. Developed by Karen Fisher, Philip Fawcett and colleagues at the University of Washington Information School, Teen Design Days is a scalable, portable methodology that provides an innovative way for youth use technology to address information literacy and other complex issues in their communities.

The Teen Design Day workshop addresses the need to build a more equitable, ethical, and sustainable future for today's digital youth. Drawing on examples from the Information Mediaries (InfoMe) project with ethnic minority youth in Seattle, USA, workshop participants will engage in a series of activities associated with the Teen Design Day methodology that are designed to meet youth developmental needs in seven key areas: physical activity, competence and achievement, self-definition, creative expression, positive social interaction, structure and clear limits—in gender and culturally appropriate ways.

InfoMe provides a wealth of examples about youth and information literacy. In many countries, ethnic minority youth serve as information mediaries, engaging adult relatives with technology and providing everyday information. This is particularly true in immigrant communities, where young people have a better grasp of English and often help their families navigate daily situations. This places youth in a unique and critical position as civic actors, not just on their own behalf, but also on behalf of their entire family. The Teen Design Day Methodology gains insight into this InfoMe role and engages in design around tools that can support it. In the process, youth hone the information and civic literacy competencies needed to become engaged within their communities and society.

Youth have participated in Teen Design Days at community centers and public libraries in Seattle where they reflect on their info mediary behavior using social network mapping tools and cultural probes involving storytelling, images, and dramatic play. Smart phones and other digital devices and applications, as well as low-tech prototyping using clay, cardboard, paper, wire, fabric, colored pens, etc., are used to devise ways of facilitating teens' current and potential InfoMe behavior using the design thinking premise of inspiration-ideation-implementation and participatory design. Various stakeholders including their parents, project funders, instructors, case workers, and city staff are then able to select ideas/designs for further development.

Workshop Objectives

The objectives of this half-day ECIL workshop are for participants to: (1) learn about the Teen Design Methodology; (2) plan their own Teen Design Day(s) around a topic of their choice with matching activities; and (3) participate in a design thinking activity that supports youth information literacy.

Workshop Topics

Workshop topics and activities will include: Basics of the Teen Design Day methodology, including the theoretical and empirical foundation behind its development; viewing and critiquing videos of completed Teen Design Days; participation in a design thinking exercise that focuses on information literacy; hands-on small-group activities to design a draft Teen Design Day curriculum on a topic of choice, i.e., explore ways to adapt the Teen Design Day Methodology in one's own work; and presentation of each group's Teen Design Day draft curriculum, in order to gain feedback.

Outcomes

Participants will: become well-versed in the Teen Design Day methodology and have a working/draft curriculum that they can apply to their own setting; receive copies of activities/exercises used by the workshop organizers in their past work and will learn how to adapt them; become part of the growing Teen Design Day community of practice, with access to future resources and expertise. The workshop will provide a fruitful opportunity for researchers and practitioners alike to examine their work through a new lens based on design thinking principles. By drawing connections between their work related to any one of the conference themes or overall focus and the Teen

Design Day Methodology, participants will gain new insight into strategies and technologies for promoting information literacy, critical thinking and engaged citizenship among youth, especially frequently marginalized groups such as ethnic minority and immigrant youth. The workshop is aimed at researchers, professionals and educators with an interest in youth and information literacy.

Keywords: *Information literacy, digital literacy, youth, information mediaries, information behavior, social networks, information seeking, information needs, information sharing, ICTs, teenagers, immigrants, media*

Panels

How to Build Up a Europe of Knowledge – Count on Libraries!

Chair

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Libraries all over Europe form a network which benefits every European. Their work and services are closely related to many of the Europe 2020 targets including lifelong learning, a digital agenda and cultural creativity. Libraries assist in finding solutions to the many challenges encountered when trying to reach these targets (fighting poverty and unemployment, promoting cultural diversity, enhancing [digital] knowledge skills).

Libraries actively contribute to the empowerment of European citizens and to a sustainable knowledge-based Europe. However, a clear strategy with all stakeholders involved is urgently needed.

EBLIDA-EGCIS presents a framework for EU policy on information literacy. The objective is to share knowledge about relevant upcoming legislation, programmes, and the potential and impact of libraries.

The policy builds on international UNESCO and IFLA professional statements matched against political challenges in Europe. It outlines the libraries' added value and stronger role as promoters of lifelong literacy and other skills crucial for the 21st century.

In addition, EBLIDA has contributed to the report on literacy released in September 2012 by the EU-High-level group of experts on literacy. By offering a general action plan crossing players and targets, this report defines guidelines of actions that will benefit from support at the EU level.

EBLIDA is engaged in an active dialogue with the Directorate General of Culture and Education to set up the European Network of Literacy Organisations on the one hand and on the other hand a yearly "Europe loves reading" week. Meanwhile EBLIDA also coordinates with the DG Development and Cooperation that supports spreading literacy through cooperation programmes outside of the EU.

The panellists will discuss how libraries can become centrally involved in national literacy policies. They will give examples of how libraries can get the message across that "A Europe of Knowledge needs libraries". The panelists will also elaborate in concrete terms on how to engage with policymakers. All panelists are members of the *Expert Group on Culture and Information Society (ECGIS.* It makes up part of EBLIDA, the European Bureau of Library, Information and Documentation Associations, the advocate for libraries in Europe. ECGIS concentrates particularly on the impact of libraries in the European cultural and information society issues and develops strategies and statements, including those on information literacy in Europe.

Keywords: *Policy making, knowledge sharing, empowering, knowledge-based economy, libraries*

CoPILOT - Developing a Community of Practice for Sharing Information Literacy Resources as Open Educational Resources

Chair

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Many librarians have shared their information literacy teaching materials with colleagues both within their own institution and more widely for some years. There have been several initiatives in Canada and the United States to do this more formally (ANTS and PRIMO). In addition some librarians are using national learning resource repositories such as the US database, Merlot and the UK based collection, Jorum to share their materials.

A group of practitioners from the UK have been working to develop librarians' understanding and use of open educational resources (OERs). Sharing information literacy materials under open licenses such as Creative Commons, is still not common. Librarians may make their resources available but they are not always indicating through licenses that others are free to adapt and reuse them. In addition, knowing what information can be shared, where to deposit materials and how to prepare it so that it can be easily retrieved by others is not straightforward.

This session starts by briefly reporting on several recent projects in the UK led by the University of Birmingham, in partnership with London School of Economics, UNESCO and the CILIP Information Literacy Group to encourage the sharing of information literacy teaching materials resources as OERs. Project CoPILOT ran in late 2012, building on an earlier project, DELILA (Developing Educators Learning and Information Literacies for Accreditation) (DELILA, 2012), it aimed to foster a community of practice using the UNESCO Knowledge Communities online platform. Project CoPILOT also coincided with the formation of a special interest group in the UK, for those interested in sharing IL resources, supported by the CILIP IL Group. Members of the CoPILOT project team, and the UK special interest group will make up the panel.

The session highlights how librarians can be natural advocates for the open education agenda; by licensing materials as OERs librarians can act as champions within their institution; providing guidance and support to colleagues. The session provides an opportunity to delegates to consider some of the challenges and opportunities OERs present to the library profession. By encouraging 'open practice' librarians can act as exemplary teachers. Using open teaching materials means that resources for developing information literacy skills and competencies can be shared widely internationally. Information literacy and OERs are both core interests for UNESCO who recognised the importance of this work back in June 2012, when they invited the authors to speak at the World Open Educational Resources Congress (Secker and Graham. 2012). Librarians have long argued that the value they provide in developing information literacy knowledge, skills and behaviours should be recognised by other professions. Surely there can be no stronger case for the need to share IL teaching materials as widely and as openly as possible to ensure this is the case?

After presenting some of our findings from recent projects, we will open the floor for discussions about how we can develop the fledgling community of practice beyond the UK and some of the specific challenges and opportunities that open practice might present.

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Keywords: *Open education, sharing, community of practice, networking*

Information Literacy: When Research Meets Practice

Co-chairs

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Topics and Objectives

Most participants in the scholarly debate on information literacy (IL) agree that information literacy is a practically-oriented concept "that is basically convincing; however, some of its central areas remain both theoretically and empirically underresearched" (quote translated from German, see Ingold 2005, p. 99)

Although by now there are countless empirical studies on information-seeking behaviour and information literacy among students, there is a distinct lack both of research on the information-seeking behaviour of children and of empirically evaluated measures for teaching information literacy (e.g. in schools and lessons). The question also arises to which extent (if at all) the results of existing research inform practice in terms of content and methods, and what research is able to contribute to the longer-term facilitation of IL for the aforementioned target audience from the point of view of practice.

In this session, the results of current research and the emerging strategic and didactic considerations will be presented in the form of short presentations. Subsequently, a round table discussion with the presenters and further experts in both the theory and practice of IL promotion will open up these results to further debate regarding their possible transferability, relevance and practical implications. This session should be at least one and a half hours long. One hour is estimated for the first part containing the three short presentations, and half hour for the second part containing the interactive round table discussion. The proposed session will be chaired by Alexander Botte (DIPF) and Heike vom Orde (IZI).

Part 1: Short Presentations

Alexander Grobbin (DJI) will discuss the research question "How and for what reasons do children search on children's search engines?" Looking for information online is becoming increasingly important for children, both at school and in their spare time. Gaining access to the collected knowledge of the Internet and utilising it for research purposes is usually impossible without the use of search engines. However, despite popular discussions about "digital natives", the use of online search tools has its problems. Against this background, the project "The Information-Seeking Behaviour of Children Online", conducted by the German Youth Institute (DJI), investigated the online information needs and search strategies of children between the ages of six and thirteen. The study combined findings from several sources: a) analysis of over 600,000 search queries from three German search engines for children; b) online interviews with the "target group"; and c) analysis of representative reference data concerning children's search engine use.

Heike vom Orde (IZI) will present key findings on the "Information-seeking behaviour of digital natives". Empirical research supports the assumption that the information literacy of so-called "digital natives" has not improved, despite the rise in ICT skills and increased access to the web (e.g. Head / Eisenberg 2010, Rideout et al. 2010). If students approach the task of finding information related to their studies using the Internet or scholarly databases, there is

evidence that their information-seeking strategies are based on efficiency and utility. Students are relying extensively – sometimes even solely – on tools such as Wikipedia and Google. Moreover, empirical research suggests that digital natives are using these tools in a fairly unsophisticated manner. When considering IL didactics and promotion, the widening gap between the learning culture of educational institutions and the information culture of digital natives also needs to be taken into account. Considering relevant results of youth media research and focusing on the ways in which young people search for information may offer IL practitioners clues as to what successful strategies to support the information literacy competencies of digital natives might look like.

Wolfgang G. Stock (Heinrich-Heine-University, Düsseldorf) will deliver a paper on "Didactics of Information Literacy". Research (Ader, Orszullok & Stock, 2013) confirms that there is a specialised didactics for information literacy instruction. Stock's presentation will discuss the following questions in the light of empirical findings: Is information literacy a subject on its own right? Which teaching methods are conducive to optimal learning success? What role does gamification play – especially when teaching digital natives? What subject matters should be taught in primary schools, secondary schools, and universities? Who should teach information literacy? Are we in need of a specific infrastructure for teaching information literacy in schools?

Part 2: Round Table Discussion with Presenters and Experts

In the following round table discussion, the presenters plus possibly two extra experts will expand the scope of what has been presented. The discussion will be chaired by Alexander Botte, deputy director at the German Institute for International Educational Research (DIPF) in Frankfurt am Main. Following up the empirical and didactical findings of the presentations, the discussion will focus on questions such as: Is what we know about the information behaviour of children and youths reflected in our concepts of IL for this target group? Do teachers know about children's information behaviour and what can we do to improve the initial position? Do we need an extended concept of IL in the age of web 2.0 or 3.0, and what are the didactic and methodological challenges? What can research contribute to convince school administration and teachers of the difference between the professional instruction of IL and traditional good principles of teaching?

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Keywords: *Empirical research, didactics, information-seeking behaviour, IL in childhood and schools*

Public Libraries, Digital Literacy, and Public Policy: An International Discussion Panel

Chair

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Librarians: Leaders in Digital Inclusion Initiatives

In our technology-saturated culture, there is an emerging understanding that access to technology is only a part of the solution needed to ensure digital inclusion and empowerment. Increasing digital skills and competencies make up the rest of this equation. Twenty-first century digital literacy skills are basic to classroom performance and workforce readiness, as well as full participation in civic life.

In the United States, libraries are on the front lines of digital inclusion and digital literacy efforts nationwide. About 120,000 K-12 school, higher-education and public libraries reach and serve people of all ages, income levels, and ethnicities in the United States. They serve as information hubs, conveners, and collaborators. They provide venues in which patrons and students can engage with, discuss, share, and create information, going far beyond access to research and materials. Librarians work in collaboration with educators across the preschool to higher education continuum and in the public realm in wide-ranging and significant ways to provide digital literacy instruction to their communities.

Policymaking should reflect multiple dimensions: digital literacy is the ability to use information and communication technologies to *find*, *understand*, *evaluate*, *create* and *communicate digital* information. Basic reading and writing skills are foundational; and true digital literacy requires both cognitive and technical skills.

The public's attainment of twenty-first century digital literacy skills is essential for a country to compete economically, educationally, and intellectually in the global environment. Two major federal initiatives in the United States—the National Broadband Plan, released in 2010, and the Broadband Technology Opportunities Program, initiated in 2009—focused national attention on digital inclusion and spurred government agencies to develop policies and programs to expand broadband access and adoption as one important component of digital inclusion. Broadband Internet access is essential, but access alone is not enough. The Federal Communications Commission (FCC) estimates that 66 million people in the United States lack basic digital literacy skills. This skills gap constitutes a second digital divide that demands solutions to ensure that the American public is prepared for the global information marketplace.

We propose an interactive panel presentation to share best practices in place in the United States and engage with practitioners from other countries to learn from initiatives underway in other settings. We believe that librarians are key to successful and sustainable digital inclusion models. Through discussion with panel presenters and the audience, we propose that new perspectives on addressing digital literacy challenges will emerge. A dialog with international practitioners and researchers will result in a rich set of interventions and strategies that if implemented would allow librarians to develop leadership roles in future broadband adoption and digital literacy efforts. A product from the panel presentation will be to create a more inclusive set of best practices that incorporate voices of experience from the international field. Findings will be written as a white paper for broad dissemination to digital inclusion stakeholders.

Keywords: *Digital inclusion, digital literacy, libraries, librarians*

RIDLs – A Collective Approach to Information Literacy in Higher Education Research

Chair

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Background

The Research Information and Digital Literacies Skills Coalition (RIDLs)[1] is a collective endeavour in the UK which seeks to promote the value of training and development in information skills, and advancement of information knowledge for academic researchers. It brings together partners from different constituencies which each provide distinctive perspectives, including academic librarians, data management specialists, career and professional development experts, information sciences researchers and specialist bodies such as JISC. Its approach is founded on the realisation of a joint programme with practical outcomes, which capitalises on these different outlooks. Unlike existing initiatives such as ENIL[2], it is not focused specifically on IL research, but deliberately seeks to bring together both researchers and practitioners; the philosophy is not unlike that of NFIL[3] in the USA.

This collective approach, and its applicability in a wider European setting, will be presented at the proposed ECIL workshop.

The RIDLs work programme comprises the following elements:

- Setting out and validating criteria for describing, reviewing and assessing IL training;
- Identifying and promoting representative instances of good practice in IL literacy training;
- Running regional workshops to promote the use of the Vitae Researcher Development Framework[4] as a tool for supporting the development of information literate researchers;
- Commissioning a research project to support improved knowledge, capability and confidence in making research data more open;
- Developing an international outreach capacity, by linking with organisations outside the UK interested in a similarly collective approach; RIDLs members were thus able to take part in a FP7 bid to develop training resources relating to open access.

Issues for Panel Discussion

The Panel discussion, taking place after the end of RIDLs' initial term, will allow for a consideration of what has been achieved and how outcomes might be sustained. Firstly, the session will examine the RIDLs approach to

[1] http://www.researchinfonet.org/infolit/ridls/
[2] http://enil.ceris.cnr.it/Basili/EnIL/
[3] http://infolit.org/about-the-nfil/international-alliance-2/
[4] http://www.vitae.ac.uk/rdf

building a coalition and what is distinctive about this, the relationship between partners and the framework for joint practical activities.

The issues that RIDLs raises are not bound by national settings. The session will therefore provide an opportunity to reflect on questions about its wider applicability:

- Can RIDLs be transposed or provide a useful and distinctive precedent in other parts of Europe, or beyond?
- Can it be sustained, amplified or applied in different settings?
- Can it serve as a basis for transnational activities?
- How might RIDLs usefully engage with existing international initiatives such as ENIL, IFLA and UNESCO's IL portfolio?

Differing circumstances are likely to prevail in other countries, and it is up to the different stakeholders to decide on what might be possible and appropriate in their respective environments. Panel members will provide their perspectives on these questions and on how the RIDLs approach might serve as a basis, internationally, for advancing IL. This will set the scene for discussions with session participants (in small groups to help with interactivity), where the emphasis will be on reaching views on how such an approach might be further developed in practice.

Keywords: *Information literacy, coalition, networking, good practice, higher education, research*

Early Statements

The Information Service Environment Relationships and Priorities*

Paul G. Zurkowski

* Originally presented as a report (related paper number five) to National Commission on Libraries and Information Science National Program on Library and Information Services in 1974. Published with the permission of Paul G. Zurkowski.

Edited by Esther Grassian and re-formatted with an introduction by Serap Kurbanoğlu

Introduction

Serap Kurbanoğlu
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When we first decided to organize the ECIL (European Conference on Information Literacy), we started discussing possible keynote speakers for this initial conference. Paul G. Zurkowski, as the creater of the concept of "information literacy," was the first name that came to our minds. However we had neither the courage nor trace of him to contact him personally. I remember writing to Woody Horton, a great supporter from the first day the idea of organizing an international Information Literacy (IL) conference in Europe was born. In my message, I talked about how appropriate it would be if we could bring Mr. Zurkowski to Istanbul to deliver a keynote speech at this very first conference, and how wonderful it would be to hear what he thinks about, and his reaction to developments in the area of IL since he first coined the term in 1974. Good news arrived through Woody, who knew Paul personally and contacted him on our behalf. Paul kindly agreed to travel all the way from Washington, D.C. to Istanbul to address the conference participants. He sent us an abstract for his keynote speech and gave us permission to reprint and disseminate his 1974 report.

I have hardly seen an IL resource (book, article, paper, thesis, etc.) which does not cite this report. There is no doubt that his report is one of the most cited works (if not the most cited) in the area of IL. Bibliometric studies which talk about most cited authors and works are not capable of indicating this fact, because they are inevitably based on published works indexed by citation indexes (such as Web of Science and Scopus). Being aware of the value of the report and also its poor condition (a digitally scanned, but faded typewritten paper available through ERIC, with the best available copies hard to read in places), we wanted to create a legible electronic copy that would be easy for non-native English speakers to read, and make it widely available. Once again through Woody, we asked Paul's permission to re-key his report and publish a completely legible copy in the ECIL Book of Abstracts. He was extremely generous to give us permission to do this.

We were excited about the idea of publishing this famous report, however because of its condition, it was not an easy task to convert it to a Word document. Joumana Boustany from Paris Descartes University converted it to a Word file by using OCR ("optical character recognition") software, with a few words filled in here and there by one of our native English speaking editors, Esther Grassian.

To help readers follow the text as it appeared in the original report, we put page numbers in square brackets. We did not reproduce the figures since they were produced by hand and therefore have special value. We copied them as they are, indicating the page numbers. We kept the footnotes as they were. All footnotes enumerated by Arabic numerals come from the original text. The rest were created by us/editors. Any additional notes and explanations from the editors appear in square brackets. Typographical errors were also indicated in square brackets.

We hope you enjoy reading it if you have not read it already or re-read it from a clean copy this time.

The Information Service Environment Relationships and Priorities

Paul G. Zurkowski
President, Information Industry Association, Washington D.C., USA.

[page i[*] - *Cover Page*]

National Commission on Libraries and Information Science

National Program on Library and Information Services

Related Paper

Number five

The Information Service Environment Relationships and Priorities

Paul G. Zurkowski

President, Information Industry Association

This paper (1) identifies various categories of private sector information resources; (2) identifies categories of industry/library relations of a traditional nature; (3) identifies examples of situations where traditional roles of libraries and private sector information activities are in transition and (4) suggests priorities for implementation of the National Program to facilitate the recognition and maintenance of the mutually supportive roles of industry and libraries.

November, 1974

[page ii] *Table of Contents*

[*] Note from the editor: In the original document, there are no page numbers on the first two pages (cover and table of contents). Page numbering starts with the *Prologue*. To prevent confusion, the editor has used Roman numerals to number the first two pages.

[page 1]

I. Prologue

The Goal: Achieving Information Literacy

Information is not knowledge; it is concepts or ideas which enter a person's field or perception, are evaluated and assimilated reinforcing of changing individual's concept of reality and/or ability to act. As beauty is in the eye of the beholder, so information is in the mind of the user.

We experience an overabundance of information whenever available information exceeds our capacity to evaluate it. This is a universal condition today for three reasons:

1. The information seeking procedures of individuals are different at different times for different purposes.
2. A multiplicity of access routes and sources have arisen in response to this kaleidoseopic approach people take to fulfilling their information needs. These are poorly understood and vastly underutilized.
3. More and more of the events and artifacts of human existence are being dealt with in information equivalents, requiring retraining of the whole population.

The infrastructure supporting our information service environment transcends traditional libraries, publishers and schools. It embraces the totality of explicit physical means, formal and informal, for communicating concepts and ideas.[1]

[page 2] From amongst these activities, information publishing activities, whether publicly or privately funded[2] can be identified as those devoted to anticipating information interests, filtering information abundance and directing idea and concepts to specific fields of perception in cost-effective and useful communications media.

Such an information publishing activity can be viewed as a prism. It gathers "light" (ideas and concepts) and performs a variety of "refractory" functions (editing, redacting, printing, microfilming, encoding, arranging, etc.). It produces a spectrum of information products, services and systems designed to correspond to the kaleidoscopic needs of the field of users it purposefully selects to serve. The individual user has many facets and shows different needs to the information sources at different times for different purposes.

Anticipating these changing needs and packaging concepts and ideas to meet them is a major evolving economic activity[***]. (See figure 1). This differs from traditional publishing in significant ways which will be discussed later. (See Figure 2).

Figure 1 demonstrates that information publishing activities *gather data* of interest to a specific subject, field or market, *produce information* [sentence ends here, without a dot].

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[1] Including but not limited to telephone, television, radio, human voice, and action, newspapers, magazines, books, paperbacks, movies, theater, graffitti, pamphlets, maps, tours, audio tapes, schools, door-to-door salesmen, direct mail advertising, computer data bases, newsletters, microform collections, drugstore book and magazine racks, government pamphlets, bookstores, libraries, political campaigns, churches, social clubs, satellite communications, cable television, other broad band communications, cocktail parties, town criers, committees of correspondence, pamphleteers, museums, expositions, etc. *Most importantly, however, the infrastructure also includes all of the human skills necessary to the functioning of these physical means, as well as the wide variety of economic structure on which their continued viability depends.*

[2] The Information Industry Association (I.I.A.) was established in 1968 and is made up today of more than 70 member companies. The I.I.A. is limited by its charter to commercially chartered, for-profit companies, but the functions of the industry are also performed by non-profit and government agencies. See also *Encyclopedia of Library and Information Science,* Vol. II Marcel Dekker, Inc., New York, 1974, p. 483 et seq.

[***] Editor's note: Many parts of the original report are underlined. Here all underlined parts are presented in Italics.

[page 3]

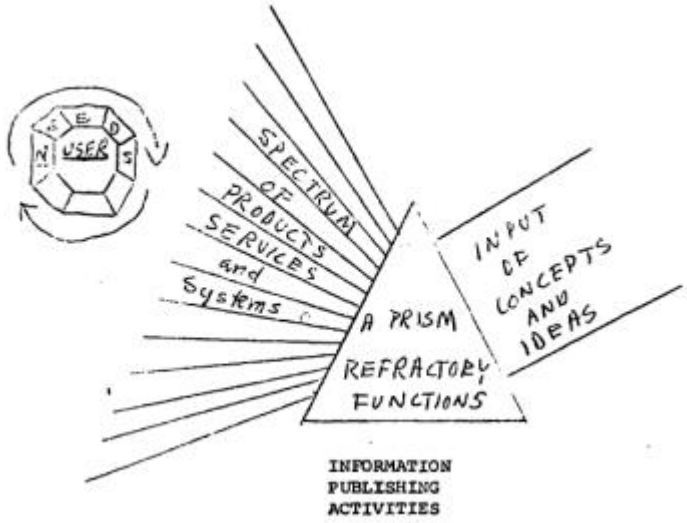


Figure 1 [page 3]

These include:

A. *Information Generation:* 1. Original authoring or writing (e.g., NY Times); 2. Compilation (e.g., Dunn and Bradstreet, R.R. Bowker; 3. Recruitment of authors (e.g. Alfred Knopf); and 4. Cataloging, abstracting, and indexing (e.g., any "secondary service" publisher, like Congressional Information Service or H. W. Wilson).

B. *Information Publishing:* 1. Editing (all of the above); 2. Formatting for original publication (all of the above); 3. Formating for re-publication in another form (e.g., CIS Microfiche Library; The Readers Guide Bantam Books; Lockheed on-line system); 4. Distribution (e.g., Richard Abel; Lockheed; McNaughton Library Service); and 5. Publicizing, marketing, and educating (all of the above).

C. *Technology Applications:* ("Hardware"): can be applied in the pursuit of any of the above functions; these include such things as dictating machine, microfilm camera or reader, computer composition microwave transmission, printing press, computer storage and retrieval[,] optical character recognition, etc.

[page 4]

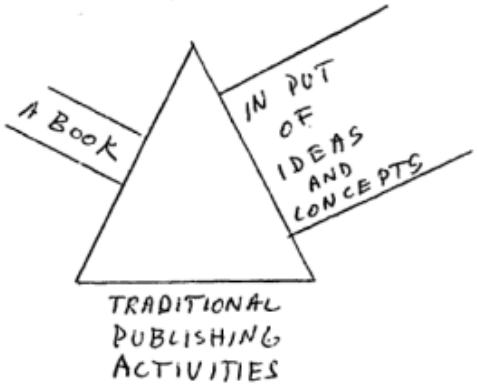


Figure 2 [page 4]

A traditional publisher considers each book an economic entity standing alone. The publisher is successful to the extent that more books succeed than fail. In traditional publishing, the related, parallel portions of the spectrum of products and services which can be derived from the input of ideas and concepts may or may not be recognized and may or may not be marketed.

[page 5]

[Line missing] (products, services or systems capable of informing) *and focus the information* on the intended users expected needs. All of these are labor intensive, intellectually disciplined, costly, risky and capital intensive activities. Their success is measured by the feed-back received from the user.

In a vital marketplace of ideas information publishing activities must enjoy not only the right to succeed but also the right to fail.

In the competitive information marketplace the measure of success is whether a particular enterprise proves to be profitable. The marriage of the profit motive to the distribution information is the single most important development in the information field since Carnegie began endowing libraries with funds to make information in books and journals more widely available to the public.

Since no one can have a monopoly on ideas and concepts (copyright grants only a limited monopoly in a particular statement of ideas or concepts), *competition is keen* in identifying ideas and concepts with a high degree of relevance to a particular market or group of users and in bringing those ideas and concepts into the field of perception of that market. If the right decisions are made about (a) the identification of ideas and concepts (b) their documentation or packaging, (c) the intended group of users and (d) pricing, the enterprise will thrive and be profitable. *If not it will fail.*

"Precisely because business can make a profit; it *must* run the risk of loss. The strongest argument for "private enterprise" is not the function of profit. The strongest argument is the function of loss. Because of it business is the most adaptable and the most flexible of institutions around. It is the one that has a clear, even though limited, performance test. It is the one that has a yardstick".[3]

[page 6]

In the government sector no such yardstick exists. Information activities are funded as a value of society. This is a more general standard and one more subject to the laws of inertia.

"One can argue that this or that obsolete hospital is really needed in the community or that it will one day again be needed. One can argue that even the poorest university is better than none. The alumni or the community always has a "moral duty" to save 'dear old Siwash'.

"The consumer, however, is unsentimental. It leaves him singularly unmoved to be told that he has a duty to buy the product of a company because it has been around a long time. The consumer always asks: 'And what will the product do for me tomorrow?' If the answer is 'Nothing' he will see its manufacturer disappear without the slightest regret."[4] Thus, for the user, there is a specified yardstick. *Information has value in direct proportion to the control it provides him over what he is and what he can become.*

The user is willing to pay for services which enhance his control. Not everyone perceives this as a measure of the value of information. Many who are conscious of the need for information still feel that information, like air, is a free good.

People trained in the application of information resources to their work can be called information literates. They have learned techniques and skills for utilizing the wide range of information tools as well as primary sources in molding information solutions to their problems.

The individuals in the remaining portion of the population, while literate in the sense that they can read and write, do not have a measure for the value of information, do not have an ability to mold information to their needs, and realistically must be considered to be information illiterates.

Figure 3 illustrates the relatively small percentage of people who have attained some degree of information literacy.

[3] *Age of Discontinuity* - Peter F. Drucker; Harper & Row, 1969, p. 237 et seq.

[4] *The Age of Discontinuity*, op. cit.

[page 7]

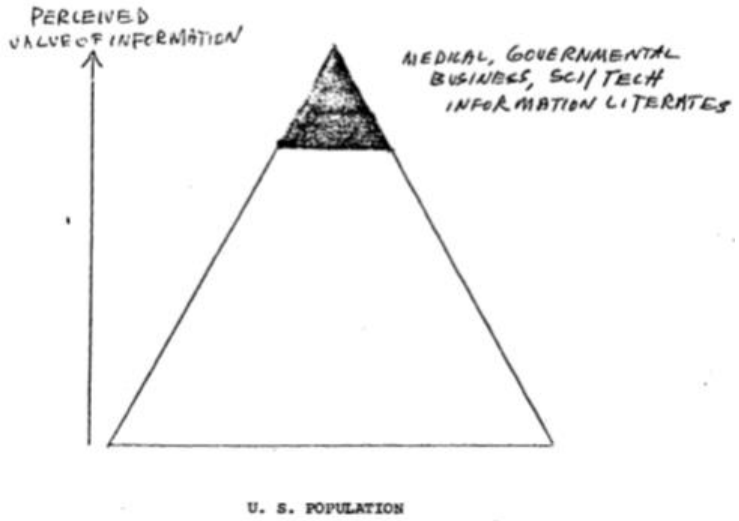


Figure 3 [page 7]

While the population of the U.S. today is nearly 100% literate, only a small portion - perhaps one-sixth, could be characterized as information literates.

[page 8]

The work of the Commission should be viewed in terms of achieving total information literacy for the nation.

This paper seeks to:

1. Provide indicators of the broad range of services already being offered by non-government, non-library-based business firms.
2. Identify the policy questions that need to be resolved in order to maximize the pluralistic structure of the information economy already in place in order to achieve information literacy for our entire population, and
3. Suggest priorities which the commission should consider in attaining the goal of information literacy.

II. Private Sector Information Resources

A snapshot of the private sector information resources needs to be taken with an extremely wide angle lens. Having taken the picture it is fairly easy to identify and define categories of services, subject areas covered, and, in-some cases, even the intended markets for particular products. Specific categories will be identified and examples cited for each without any expectation that the list will be complete.

It must be noted, however, that each resource cited is but one of a group in a spectrum of services offered by a particular company and its competitors and that for each resource cited there exists, in various stages of development, another spectrum of comparable, related or competitive services (cf. Figure 1.).

A. Information Banks

The creation of an *information bank* – a resource people can draw on, is a most capital intensive activity.

The Library of Congress MARC program is one example.

[page 9] Others include:

Shepard's Citations - used in law libraries and by individual law firms, based on the arrangement of legal citations to previously decided court cases.

Science Citation Index and *Social Science Index*[5] used in research libraries and by individuals, based on an organization of scientific citations in sci/tech literature and social science literature, respectively.

International Data Corporation - monitors the location of computer facilities in the U.S. and elsewhere identifying central processing units and related facts about each facility. Its market is primarily suppliers of computer room equipment services and supplies.

Predicasts, Inc. - a Cleveland based company, monitors the literature of the business world and captures one-line entries on specific articles industries by SIC code numbers to facilitate users seeking information on specific industrial and business fields.

Disclosure, Inc. of Silver Spring, MD., has created a machine readable file of abstracts covering all the corporate reports required to be filed with the Securities and Exchange Commission. The information files are published regularly in inkprint as a form of bibliographic control over the microfilm version of the documents also marketed by Disclosure. The arrangement was achieved through soliciation [sic] of competitive sources by SEC that resulted in a no-cost to the government contract. The latest contract renewal included a provision for pilot programs in Dallas and **[page 10]** Nashville where library use of the financia1 information provided by Disclosure developed new customers for the libraries. Subsequently, these two libraries have subscribed to the Disclosure Service to continue serving their users.

Standard and Poor's - a McGraw-Hill Company, has collected a great deal of detailed income statement and balance sheet data on public companies, data which were not compiled and easily available anywhere else to the public.

The New York Times Information Bank - includes full texts of the informative abstracts written on all articles appearing in the *New York Times.*

The government subsidized the creation of a wide-range of sci/tech data bases by professional societies. These include Engineering Index, Chemical Abstracts, American Physics Institute and others.

Many of these information banks are marketed respectively by each company in a variety of formats and initially were offered only in inkprint.

There are a dozen companies which have built information banks, in part based on the MARC tapes, offering a multitude of services to libraries. Information Dynamics Corp., Richard Abel & Co., Science Pres., Inc., Brodait, are but a few.

B. Information Bank Vendors

The last 18 months has seen the emergence of companies marketing access to machine readable information banks. The function of these companies is to make arrangement to have available for on-line search as many **[page 11]** information banks as possible. They then seek to develop a dual multiplier effect in marketing access to these banks. The more banks a company has "up" the easier it is to convince a user to install the necessary terminal equipment by which to gain access to the files. Similarly, the more there is to search the more likely it is the searches will be made.

Lockheed Information Systems, Systems Development Corporation and certain time-sharing organizations such as General Electric vend access to multiple information banks stored in their systems based on a variety of lease and user charges.

Lockheed is experimenting with several Northern California libraries under a National Science Foundation grant to determine the feasibility of having libraries serve as "retail" outlets for these search services. Presumably, the cost of these search services would ultimately have to be borne either by the library or its users.

A further innovation both Lockheed and SDC offer their subscribers who perform searches on information files created by the Institute for Scientific Information is the facility to order a tear sheet of any article they obtain a citation on from the system. The orders are stored in the vendor's computer and are "read out" by ISI at the end of the day. Original Article Tear Sheets or authorized photocopies are supplied by ISI by return mail. This arrangement provides one example of how to deal with the threshold copyright problem, since ISI has established relationships on copyright questions with, and pay royalities [sic] to, the publishers of journals cited in its information bank file.

The New York Times Information Bank is unique in that the creator of the Bank is also vending access to it by placing terminals and training **[page 12]** people in their use. The *Times* is experimenting in Canada with providing individuals access to the files through libraries.

The availability of such services in libraries has numerous side effects:

[5] Both are products of the Institute for Scientific Information, Phila.

1. For information bank creators and vendors who originally designed their service and priced it on a "per-search" basis increased usage in libraries widens the market.
2. For creators and vendors whose costs have never been subsidized and also serve a narrow market, the ability of users to gain access to the file on a "per-use" basis without paying lease fees charged other users destroys the economic basis of the file and will eventually eliminate its availability or result in severe modification in the file and its marketing procedures.
3. In some cases where access to the machine readable version requires the use of an ink-print version, library usage will expand markets for both.
4. In cases where the availability of the machine readable file on a per-use basis is an adequate substitute for the ink-print versions, there is serious cause for concern on the part of the publisher who has an economic activity in ink-print but may lose out if the machine readable file becomes available even on a "per-use" basis in libraries.

C. Publishers

Libraries are filled with the products of publishers, books, journals, pamphlets, recordings, film strips, microfilm collections. All are economic goods which have been purchased by libraries for the express purpose of lending them to the patrons of the libraries. When these items are out on loan they are off the shelf. If demand increased in the past additional copies were purchased.

In many cases this lending practice created an awareness of the value of the information contained in the materials and often led to individuals **[page 13]** subscribing directly on a personal basis for similar services. In the case of many business information services this led to the development of a whole market for timely services.

Many publishers offer discounts to libraries considering the library a ready market and one requiring lesser marketing expense to reach. Other publishers, primarily of reference and information tools scale their subscription rate to the anticipated number of users expected to have access to their products. In any case, the pricing strategy is designed to generate sufficient revenues from a multitude of sources to make it economic to undertake the creation, manufacture and distribution of a particular product.

A starting point for this strategy is the identification of "first copy costs", or what does it cost to create the first copy? (After one copy is made, the incremental costs of subsequent copies are usually comparatively small.) The economics of publishing requires that all subscribers pay a share of these first copy costs. Since the first copy costs are to be incurred, regardless of the medium used for publication, many journal publishers contend that spreading these over the largest ink-print press run possible is the most cost··-effective means of distributing scientific and technical information.

In the field of publishing there also is a relatively new phenomonon [sic] called micropublishing, or more correctly microrepublishing, since it almost universally involves republishing ink-print materials, both under copyright and in the public domain in microform.

Information Handling Services organizes, indexes, and microfilms on **[page 14]** 16 mm cartridge film engineering and construction catalog information. Its contribution is to organize and make readily accessible a large body of otherwise wise elusive and quickly dated materials.

Congressional Information Service abstracts, indexes and microfilms nearly one-half the total output of the Government Printing Office. Two basic corpura [sic] of documents includes all Congressionally generated reports, hearings, bills, etc. (except The Congressional Record which is microrepublished [sic] by University Microfilms, Princeton Microfilms and others) and statistical publications of all government agencies. CIS recently began offering a file containing copies of all bills offered in Congress at a price substantially below the product of the Library of Congress it replaced. Its breakeven point is approximately 15 subscribers. (In the information service environment small audiences can be served economically and competitively.)

Readex Microprint republishers [sic] the complete output of the Government Printing Office in a micro-opaque medium for which it also offers a reader/printer.

Research Publications, Inc. collects and microfilms large academic collections such as the Papers of The Confederacy and the League of Nations Documents. It also offers a microfilm on all patents issued by The Patent Office and has begun filming state documents. It provides detailed indexes with which to use its products.

University *Microfilms*, has collected U.S. doctoral theses on microfilm and has created a Dissertations Abstracts publication by which to identify relevant theses. It also markets to libraries authorized microfilm versions of most popular periodicals.

[page 15]

Bell and Howell Microphoto microfilms large numbers of newspapers including a whole co-action on the underground press.

Greenwood Press micropublishers [of] large collections of a retrospective nature and also offers a service on municipal documents.

Disclosure, Inc., U.S. Historical Documents Institute, Microfilming Corporation of America and Library Resources, also offer a variety of micro-published materials.

This is a relatively new industry dating back only to the years immediately prior to World War 2. It is an industry that has learned that to stay in business it must do more than create on film that which already exists in ink-print; it must add value by what it does. This value most often takes the form of one or all of the following:

1. Collecting as complete a set as humanly possible from many disparate sources.
2. Organizing, editing and arranging the material.
3. Filming and coding the material on film.
4. Creating tools by which users can locate on the microfilm the precise information they desire promptly and easily.

In many cases the first copy costs of these collections must be spread over a maximum expected sale of 15 to 20 copies.

D. Information By-Products

These include everything from SDI services to journals, newsletters and other serial products. They might be by-products of an information bank or a micropublishing or publishing venture.

One major business --- Dodge Information Systems --- a McGraw-Hill Company, fits in this category. The Dodge people serve the construction field. They **[page 16]** have a data base consisting of all construction jobs being undertaken in the U.S. of a certain minimum size. The file contains information such as date bids are due, who was awarded the contract, when various subcontracts will be let, who is and when he is expected to buy light, bulbs, etc.

Information is sold out of this file to all kinds of users who wish to compete for the business of supplying materials to builders. This is sold in little pieces of paper on a daily basis, on user pre-printed multiple copy computer forms for use by salesmen and their managers in keeping track of business in a territory, etc.

Obviously, this information gives a salesman great control over who he is and what he can become. It has great value.

Newsletters are another “by-product,” but more a by-product of the data base building process than of the completed data base. A newsletter has value because it becomes built into the user’s life style. It repeatedly gives him ideas and concepts that are relevant. The newsletter publisher maintains good "feedback" from his users and knows whether what he puts out is used, and, if not, why not, and how to correct it. That is data base building. People who have been doing this for a long time have a natural reserve of information that should be convertible to a data base.

This, in turn, can then be repackaged as books, as SDI, as on-line retrieval information, as complementary data bases to other files also “up” on the same system, etc. While there are data conversion costs involved, the most expensive functions – data acquisition and editing--have been done and paid for. In addition the information has been validated through demonstration and repeated use.

[page 17]

Information is a non-depleting resource and, in fact, its use enhances its value for users as well as for information publishing companies.

E. Information Evaluation

It, too, embraces a multitude of activities. It includes, for example, facilities management, such as the *Informatics* operation of the NASA Space Information Center, where the world of space-related information is evaluated, managed and distributed. *Herner & Co*. runs a similar facility for Walter Reed Army Medical Center, concentrating on managing bio-medical research results for the U.S. Army. *Aspen Systems* has operated more limited facilities for specific task-oriented activities creating an information capability in support of certain inquiries by regulatory agencies of government.

Another example of the information evaluation activities of the industry is the whole phenomenon of "user generated", or custom query "on demand" information companies. A prime example is FIND, operated by

Information Clearing House, N Y. There are probably 20-30 companies of this kind in the U.S. today operating on a commercial basis. There are at least as many operated by government and non-profit ventures as well.

The economic reality giving rise to this business is the multi-disciplinary approach all businesses are forced to take today. Libraries in business locations turn out to have finite personnel and holdings. Rather than augment both and build into their cost structure permanent high levels of activities, many businesses are choosing to rely on the "expert access" **[page 18]** to information these firms provide. (They serve a similar function to that of the temporary help firms).

In addition, if one of these on-demand companies has 500 industrial subscribers it probably recognizes that to be a valid statistica1 samp1e of the U.S. market for information. If a dozen companies out of those 500 ask about the same question in one week, this triggers certain developments: (1) The question is researched 12 different ways. (2) The researchers identify the fact that this subject probably is of interest to a large number of other companies, both subscribers and non-subscribers. (3) A special report is prepared as a by-product of the ear1ier research and is sold. (4) The research itself, without regard to the source of the questions, may be used to construct a data base for other users as well.

Also in this information evaluation field is the whole area of special reports such as those created by Frost & Sullivan, Predicasts, Quantum Science, International Data Corporation, Auerbach, Business International, etc. In the sense that specialized (mostly sci/tech} journals also carry evaluated (by peers) information, they too fall in this category.

III. Traditional Library/Industry Relationships

In the age of evolving reading literacy library/industry relations were mutually beneficial.

Libraries were and still are for many companies the principal market for published products. For many products, the existance [sic] of a fairly certain library market for a book or journal assured a la large press run distributing first copy costs widely and reducing retail prices for individuals **[page 19]** as a result.

Libraries with collections of materials and subscriptions to current periodicals also form a market for publishers of reference works and for current awareness services. Both such products rely on the ready availability within the library of a fulfillment capability to complete the current awareness/fulfillment cycle essential to the complete information process.

For newer, innovative products libraries offer the traditional service of training individual users in the use of new products.

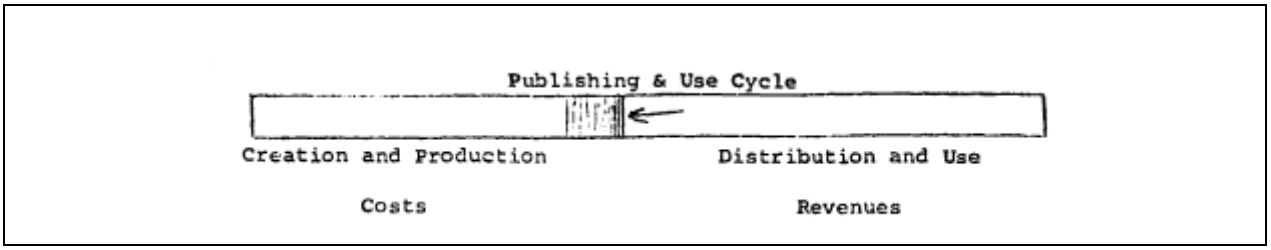
IV. Transitional Library/Industry Relationships

What is characterized in the Report as the threshhold [sic] question - copyright - covers a wide range of ways in which the library/industry roles are in transition.

For the journal publisher, interlibrary loans via photocopies represents a reversal of the relationship by which sufficiently large press runs resulted in distributing first copy costs broadly over all or almost all users. Current practice resulting in reduced multiple subscriptions within each library have drastically reduced the number of subscriptions from which first copy costs can be recovered.

The further practice of photocopying portions of journals, thereby eliminating the need for users or satellite or borrowing libraries to subscribe has the following result. (See Figure 4).

[page 20]



[Figure 4 - page 20]

In the publishing and use cycle the major costs are associated with creation and production. Revenues are generated from the distribution and use end. Photocopying, while not generating revenues for libraries, does push the publisher farther and farther back into the cost area and out of distribution and revenue area.

In many situations libraries by marketing their services to commercial users in industrialized locations on a subsidized basis are competing unfairly with firms which must recover capital investment, pay a return on investment (prime rates remain high for venture capital), and pay state and federal taxes. The change represented by this example is one of scale of activity rather than in kind. Often in order to "get a good return for the taxpayers investment in a new information service" libraries will seek to reach out to precisely the same people to whom the private sector is seeking to market similar or even identical services.

Superficially both are serving the same objective - raising the information literacy of the U.S. population. From an economic standpoint, however, there is a real danger that this kind of unfair competition will destroy the economic viability of the creator of the service involved and his business will fail. Government funding will became the only viable way of creating such information services. By comparison, consider what the **[page 21]** impact on freedom of expression would have been as the U.S. developed reading literacy if government funding had been the only viable way of publishing books and journals.

A major feature of transitional library/industry relations, thus, is that both libraries and information companies are seeking to serve the same users of very specialized services.

This would be further aggravated by the creation of a national system for sharing resources unless ways were clearly defined for achieving optimum utilization of both resources.

Other than photocopying is involved in this area. For a micropublisher of a large academic collection of materials, the sharing among major research libraries of key portions of the microfilmed collections can be fatal to the economic viability of the collection if as much as one of the 15-20 potential sales are lost. A national system of sharing would guarantee that result in every case. Here again specific ways must be found to assure continued viability of multiple sources of materials.

In the case of federal libraries their redesignation as information centers also represents a real threat not only to industry but to the national tax base as well. Many federal information centers offer subsidized information services to an ever widening circle of users - first, other government agencies, then, state agencies, then, government contractors, then, their subcontractors and then on ad infinitum.

Not only does this preempt large markets for direct sales to these same users of information services, but it creates a larger federal bureaucracy and denies tax revenues to both state and federal treasuries.

It is significant that the first congressional policy statement on **[page 22]** government competition with the private sector should have come in 1933. In the depth of a depression, when Congress was cutting its salaries, it is logical that the Congress would recognize the hazards to the tax base of government agency preemption of private sector opportunities.

The size of the impact on tax revenues was set forth in a Department of Commerce table at 60 of the Report of the Commission on Government Procurement. The Commerce Department estimated that in 1970 there were $4 billion of services performed by the government that could have been shifted to the private sector.

The report states this would have produced an additional $25 to $35 million in tax revenues to the states alone. In fiscal 1970 the government agencies reported $7 billion of similar services that were performed in house rather than contracted out. If $5 billion of that had been shifted to the private sector the taxes paid to the U.S. Treasury would have totalled [sic] up to $250 million.

V. Policy Questions

In the "Reading Service Environment" the basic policy issue: what portion of publishing and library services should be left to be satisfied by operation of the forces of the marketplace and what portion must be subsidized was fairly clearly defined. In fact, the subsidized portion operating by resource sharing aggregated dependable, continuously-funded markets for publishers who, thus, became secondary beneficiaries of the subsidy. Economies of size were assured and a stable, well-balanced system evolved to serve the reading public.

This complex of relationships constituting the Reading Service Environment **[page 23]** in the main provided a healthy, dynamic institutional framework for harnessing the nation's pluralistic resources to the task of creating a reading literate society and a competitive marketplace of ideas. In many respects this relationship still pertains and it is in the public interest for all concerned to continue to build on this mutuality of interest in extending information literacy to the all segments of society.

With the introduction of new information processing technologies the line between marketplace and subsidized functions in some respects has become blurred. The process of achieving information literacy involves defining that line clearly and realistically, and in defining an institutional framework for the Information Service Environment. In our age of information overabundance, being information literate means being able to find what is known or

knowable on any subject. The tools and techniques and the organizations providing them for doing that form this institutional framework. Three major time tested policies contributed to the success of the Reading Service Environment and their application to the Information Service Environment is essential to its successful operation:

1. Individual fulfillment, the advancement of knowledge and the discovering of truth, participation in decision making by all members of society, and achieving an adaptable and stable community depends on a system of freedom of expression.[6]
2. Government should not perform services for citizens which citizens are capable of performing for themselves.
3. Government has a legitimate responsibility for assuring educational opportunities for all.

[page 24]

A. The System of Freedom of Expression Basis for the Information Service Environment

"Congress shall make no law…abridging the freedom of speech or of the press…" First Amendment, U.S. Constitution.

"A system of freedom of expression *** is a group of rights assured to individual members of 'the society to form and hold beliefs and opinions on any subject, and to communicate ideas, opinions and information through any medium * * * from the obverse side it includes the right to hear the views of ethers and to listen to their version of the facts * * * the full benefits of the system can be realized only when the individual knows the extent of his rights and has some assurance of protection in exercising them * * * it does not come naturally to the ordinary citizen, but needs to be learned. It must be restated and reiterated not only for each generation but for each new situation. It leans heavily upon understanding and education, both for the individual and the community as a whole.

"Thus it is clear that the problem of maintaining a system of freedom of expression is one of the most complex any society has to face, self-restraint, self-discipline, and maturity are required. * * * The members of society must be willing to sacrifice individual and short-term advantage for social and long-range goals.

Second (among legal doctrines supporting a system of freedom of expression) is the utilization and simultaneous restriction of government in regulating conflicts between individuals or groups within the system of free expression; in protecting individuals or groups from non-government interference in the exercise of their right to expression; and in eliminating obstacles to, or affirmatively promoting effective functioning of the system. * * * Development of this concept involves formulating specific rules for mutual accommodation of participants in the system, fairness in allocation of scarce facilities and assurance that the system will be expanded rather than contracted."[7]

The practical policy implications for achieving information literacy of a system of freedom of expression are:

1. Resource sharing in the Information Service Environment differs by an order of magnitude and has the opposite impact on sources **[page 25]** of materials to that which it had in the Reading Service Environment. Instead of aggregating markets for suppliers of materials it disaggregates these markets and denies compensation to suppliers for their services. This destroys the economic foundations of the suppliers and reduces pluralism in choices available to citizens. Systematic photocopying of published materials amounts to republishing and requires copyright clearances. All parties should work together to resolve this threshold question.
2. In-house or captive development of systems capability denies the entire (not just the library) community the benefit of competition among suppliers. (Services developed outside the library community can be sold to non-library users and the cost be amortized more broadly.) Services for inter-library cooperation should not be contracted for on a sole source basis. Competitive procurement should be required to obtain competitive bids on the specifically described services desired.
3. A concommitant [sic] of freedom of expression is the need for the user to have confidence in the information source on which he proposes to rely. Subsidization of activities that preempt alternative sources eliminates one base for confidence: Competition among products delivering concepts and ideas.
4. Individuals require not only the right to speak, but also to be heard. A pluralism of channels for communication must therefore be preserved. This will require restraint on the part of subsidized activities so as not to preempt opportunity or to eliminate channels for communication alternative to subsidized channels.
5. There must be a clear policy statement favoring alternative **[page 26]** channels for communication since in its absence the risk capital needed to sustain alternate channels will not be forthcoming. For pluralism to be assured there must be assurance that the system will be expanded rather than contracted.

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[6] Thomas I. Emerson, *The System of Freedom of Expression*, Random House, 1970, p.3 et seq.

[7] Thomas I. Emerson. *The system of Freedom Expressing* [*Expression*] op. cit

B. Government Services

Government should not perform services for its citizens which the citizens are capable of performing themselves. The benefits of this policy are:

1. That private, competitive services arise to offer citizens a choice of services.
2. That the private services offered amortize first copy costs against all possible users rather than only those government would serve with its products.
3. That the tax base is broadened by policies encouraging private initiatives and the investment of private risk capital in the development of capital intensive activities.
4. That it is more cost-effective for government to rely on private risk capital investments. If one agency requires a service needing $2 million in capital investment, by relying on private risk capital it can reduce its costs to a pro rata share of that cost distributed among all users.

The Government of the U.S. also has the responsibility to assure that the opportunity for private sector initiatives is expanded and not contracted. This should be implemented through policies affecting the procurement policies and competitive activities of the instrumentalities the government chooses to fund to implement its objectives.

Since there currently is no national agency charged with the responsibility for overseeing the formulation, implementation and oversight of government policies in this area, it is all the more important that the **[page 27]** Commission enunicate [sic] a policy identifying goals for government activities in the information service field which will direct the energies of people in government in supportive rather than competitive activities.

C. Education

Much of what has been stated above pertains to the estimated one-sixth of the U.S. Population that is information literate. The priorities of the Commission should be directed toward facilitating the participation of the pluralistic segments of the Information Service Environment already serving that segment of society. Capital investment by government in developing further resources to serve that share of the population would necessarily come at the expense of the five-sixths of the population that lacks the training to be literate in an information sense.

The top priority of the Commission should be directed toward establishing a major national program to achieve universal information literacy by 1984.

This would involve the coordination and funding of a massive effort to train all citizens in the use of the information tools now available as well as those in the development and testing states. The pattern of growth in this field is well established and should be built upon to expand the overall capability of all U.S. Citizens. Such an effort would necessarily create many new opportunities, some of which would be appropriate to the marketplace and others for subsidy.

Until the population as a whole in prepared to utilize and benefit across the board from the capabilities of the Information Service Environment proposals to create systems serving the elite alone will lack the popular political support needed to obtain the level of government funding suggested in the Report of the Commission.

The Communications Revolution: America's Third Century Challenge*

Lee G. Burchinal

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Edited with an introduction by Andrew Whitworth.

Digitised version available: http://personalpages.manchester.ac.uk/staff/drew.whitworth/burchinal.html

Introduction

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As part of the research needed for a book on the theory of information literacy (IL)[**], in early 2013 I set out to track down some of the earliest texts on the subject, dating from the 1970s. To understand a subject fully it is important to investigate its origins. Certain assumptions about the world, values and ways of thinking and forming knowledge will underpin any text, and in turn, responses to that text (Bakhtin, 1981). I had been working on IL since around 2004 but had never gone back this far in time, to examine the initial claims about what IL should be, and why it was needed, and try to appreciate, post facto, how these had influenced what IL became. A lack of attention to IL's origins is apparent at the present time. It is the received wisdom that the term "information literacy" was first used by Paul Zurkowski in a report delivered to the US National Commission on Libraries and Information Science in 1974. Citations to this paper are now common on writings on IL, yet in a few informal straw polls I took among audiences while at conferences and seminars in 2013, very few people claim to have read it: no more than around 10% of this convenience sample.

A discussion of the contribution of Zurkowski's paper to IL, and Library and Information Science (LIS) more generally, would form a substantial text in itself, so a brief summary is useful here, to put the later commentary into context. Zurkowski considered the contribution of what he calls the "Information Service Environment", seeing it as an essential pillar of (US) economic success. The pre-digital "Reading Services Environment", comprised of entities such as public libraries, educators and private interests (including publishers, donors, etc) was (Zurkowski 1974, p. 23):

> *a healthy, dynamic institutional framework for harnessing the nation's pluralistic resources to the task of creating a reading literate society and a competitive marketplace of ideas… it is in the public interest for all concerned to continue to build on this mutuality of interest in extending information literacy to all segments of society…*

Zurkowski noted how the rise of ICT was bringing about changes in the balance which existed in the Reading Services Environment, particularly between libraries and industry, who may subsequently have been in a state of competition when it came to information provision. Part II of Zurkowski's paper highlighted the emergence of "information banks"; large electronic databases, machine-readable files and so on. He named several companies offering these services, including Standard and Poor's and the New York Times. Parts III and IV discussed the evolving relationship between libraries and industry, describing the new products and markets that were opened up by the development of these information banks and new media for storing and transmitting information.

Zurkowski suggested that to maintain the good, pluralist work of the Reading Service Environment, policy changes were required that acknowledged the way ICT was shifting the relationships between publishers, readers, libraries and information providers. This is the key passage (p. 23):

> *With the introduction of new information processing technologies the line between marketplace and subsidized functions in some respects has become blurred. The process of achieving information literacy involves defining that line clearly and realistically, and in defining an institutional framework for the Information Service Environment. In our age of information overabundance, being information literate means being able to find out what is known or knowable on any subject. The tools and techniques and the organizations providing them for doing that form this institutional framework.*

As the Information Service Environment is only accessible to those who have achieved information literacy, at the end of his paper Zurkowski therefore reiterated the need for the Commission to establish a programme aimed at achieving "universal" IL within ten years, which he says will (p. 27):

> *...involve the coordination and funding of a massive effort to train all citizens in the use of the information tools now available as well as those in the development and testing states….*

[**] Whitworth, A. (forthcoming, 2014): Radical information literacy: Reclaiming the political heart of the IL movement, Oxford: Chandos.

Essentially, Zurkowski's liberalist position was that as the US government's role should be to sustain conditions of free market competition, and as informational resources were taking a form which a minority of the population were equipped to handle at that time, more information literates needed to be produced, to sustain the nation's economic competitiveness and political liberalism. But beyond this, Zurkowski offered no position on agency. No particular mention was made of learning: "education" was a section heading at the end (p. 27), but this was a short conclusion. There are no references to specific educational institutions, whether universities, schools or training companies, nor pedagogical approaches. Libraries are mentioned in the paper as an essential part of the "Information Services Environment", but not as teachers of IL.

Coupled with Zurkowski's economic liberalism there was his political liberalism, his emphasis on a plurality of voices and options, freedom of expression, and individuals' rights "not only… to speak, but also to be heard" (p. 25). These gave his appeal for IL a universalist character, positioning it as something which is fundamental, not just to the health of an economy, but to a political system and decision-making in society as a whole. Details of agency or pedagogy may have been absent but the higher-level position was clear: information literacy is for everyone, it is a fundamental aspect of communication, a shaper of possibilities. The rise of the digital information bank required us to attend to the way we shape knowledge -- and perhaps, to change the way we do so, if old means of knowledge-formation became no longer appropriate and/or the institutions and other structures which support these processes were no longer fit for purpose.

An excellent review of the early days of IL was written by Behrens (1994), and following her summary of Zurkowski, the next contribution she examined was Burchinal's. Her discussion of it was brief, but when I read it, it suggested to me that here was a paper that, unlike Zurkowski's, dealt more with how these institutions should change. The citation for Burchinal indicated that the contribution came in a speech delivered to a 1976 symposium at the Texas A & M University library. (1976 was the US Bicentennial, hence the title of the speech: "The Communications Revolution: America's Third Century Challenge".) As I began the search for a copy of the speech, I expected it would be the point at which the contribution of the library to IL was first mentioned directly, and that IL would be explicitly discussed as something that was an educational concern, something that could be taught.

I turned out to be half-correct with this assumption. But it was a while before I could confirm this one way or another, because tracking down a copy of Burchinal's text proved time-consuming, even with the assistance of the library at my institution, the University of Manchester. I was informed that the British Library, the UK's main deposit library (that is, one that receives a copy of all texts published in the country), would not allow the document to leave the reference section, which implied they held the UK's only extant copy. I was prepared to travel to London for the day to consult the text but in the end there was no need, as a photocopy turned up some six weeks after I had made my request. In the first place, then, this digitized version of the text -- presented with the approval of both Professor Burchinal and Texas A & M University -- has been made available to facilitate scholarly investigations of the earliest published statements on IL.

Burchinal's speech has been infrequently cited since, and then, not always correctly. Pinto et al's recent (2013) reference to it calls it a contribution from "journalism", which is at best misleading. Strictly, the speech should not be claimed by LIS either, despite having been presented at the Texas A & M library conference in 1976, the US's bicentennial year (hence its calling the communications revolution "America's Third Century Challenge"). Burchinal was a sociologist at Iowa State, with many 1950s and 60s publications on the family, marriage and parenting. The reason why he addressed the library conference was his involvement in the creation of ERIC, the Educational Research Information Center, which became one of "the world's most authoritative, computer-based, knowledge-exchange services" (Dentler, 2002, p.120), and an exemplar of an information bank.

Having contacted Prof Burchinal to seek permission to republish the speech, I also took the opportunity to ask him one or two questions about his work in the 1960s and 1970s, including whether he had met or worked directly with Paul Zurkowski. He answered:

> *...yes, Paul Zurkowski, with whom I frequently exchanged views, often met in [Washington] DC and at various professional meetings or trade shows. He certainly influenced my thinking at the time, particularly as I was a newcomer to the information field.*
>
> *My prior career up to 1965 had been as a university researcher in social systems and later as a research grants manager in the Office of Education (DoE, now Department of Education) at the federal level. In 1965, I was hired as the assistant director of the Division of Research, DoE, and, as result of Congressional hearings following passage of President Johnson's vast expansion of social programs, including education and educational research, I was given responsibility for developing a system to guarantee access to the substantial increase in reports expected to come from the doubling of the previous research appropriation. After becoming acquainted with the NASA technical report system, which was a star agency then, I took preliminary planning for a centralized system typical of the S&T [Science and Technology] systems of the day, such as operated by NASA, Atomic Energy Commission, National Technical Information Service, and Department of Defense, and designed a decentralized system, which became ERIC, because I thought that…*

a federally run, centralized system would incur severe opposition from the states-rights advocates, whereas the clearing houses, which would be responsible for selecting, abstracting, indexing literature in their specialized areas and located at universities or professional association offices, would be far more acceptable.

As I think back, inspiration for ERIC came from two main sources: one was my graduate training in sociology, which included the admonition that doing research is only the first part of scholarly responsibility and that equally important was following through with dissemination not only to the scientific community, but also to the broader public which then was the primary source of funds for research (through grants from federal agencies); the other was a quote from Thomas Jefferson, who has always been a hero of mine for his lofty statement of the rights of free men, and not withstanding his retention of slaves and his involvement with Sally Hennings, one of his slaves. In fact, when I became absorbed in ERIC I kept a famed hand lettered quote of Jefferson on my office wall. It read:

The lost cannot be recovered
But let us save what remains;
Not by vaults and locks
Which fence them from public eye and use,
In consigning them to tastes of time
But by
Such multiplication of copies
As shall place them
Beyond the realm of accident.

…. I drew much from Paul Zurkowski, with his zeal for the value of information and its power and his prolific writing and speaking on the subject. I was also influenced by a professor from University of Michigan, Dr. Fred Goodman, who I had inherited as a consultant when I became responsible for ERIC; he had been a consultant to the Division of Research and provided valuable suggestions as we designed the ERIC system. After ERIC had become an obvious success and even gained international recognition, Fred commented that he had been concerned that I had staked my federal career on what was then a novel and untested approach to developing an information retrieval system.

Also, coming from a scholarly background, I read leading information thinkers of the time including Bell, Machlup, Parker and I should add Professor William Paisley, School of Communication, Stanford University.

While Burchinal's speech shares several common concerns with Zurkowski's paper -- the need to prepare for imminent changes in the informational environment, wrought by digital technologies -- it ends with a more specific appeal to education as the realm in which IL could be nurtured. The bulk of the speech offers evidence for claims that the information industries had, by 1976, become the largest and most significant economic sector in the US economy, larger than manufacturing, agriculture and services combined. Costs of communication were dwindling in real terms, and there were other drivers, such as a need to conserve energy (pp. 10-11). Burchinal correctly anticipates a future in which more jobs and personal experience -- banking, purcashing, and communications with friends and work associates -- will use terminals (p. 11). He acknowledges that some universities, in engineering, science and business administration, have begun to instruct students in computer operations, and LIS instruction is also "in healthy ferment" (p.11). But more is necessary, he said: and here he repeats Zurkowski's call that "we should set about systematically to create 'information literacy' for all adults in the nation, so each can function effectively in our emerging society" (p. 11).

At this point Burchinal does two things differently from Zurkowski: he defines IL more precisely; and he suggests an institutional location for the work of creating IL. IL (p. 11):

requires a new set of skills. These include how to efficiently and effectively locate and use information needed for problem-solving and decision-making. Such skills have wide applicability for occupational as well as personal activities. Part of such competency includes comfortable use of a computer terminal for sifting through available information from various data banks to select useful data for resolving the problem at hand.

Burchinal therefore includes digital literacy as part of IL, but only a part. He defines it similarly to his contemporary Nevison (1976; see Whitworth 2009, 84-5), as being able to use a computer, although with less of a focus on programming and more on information searching.

Whereas Zurkowski's argument was presented in libertarian discourse, Burchinal uses more instrumental language. The project to create IL should be "systematic", and IL itself is about "effectiveness" and "efficiency". Specifically,

this is an educational issue. Universities who do not address this will be mistreating their graduates and damaging their prospects (p. 12), not only in occupational life but personal and home life too.

A significant passage then follows (p.12): "As these technologies become more common, elementary schools will take over the responsibility for creating information literate citizens. Universities, however, can ill afford to wait. Also university experience as in so many fields, can become the basis for subsequent school programs." Burchinal therefore clearly sees the teaching of IL in universities as a transitional stage. Universities may come to offer similar assistance as they do to primary and secondary teaching in other subjects (training teachers, researching pedagogy, offering advanced curricula), but the bulk of IL education should eventually take place in schools.

What is not mentioned, despite the audience for the speech, were libraries. By email, Burchinal noted that:

> *At the time of my speech, I vaguely recall feeling that libraries were not vigorous proponents of the "information revolution". My failure to mention libraries may have reflected this view. Of course, all that changed rather quickly and dramatically with libraries becoming strong supporters of information tools.*
>
> *Actually, basic IL instruction has become unnecessary as technology has become easier to use (when did companies last use the phrase "user friendly") and children down to the preschool level, at least in the US, have become avid users of all kinds of PCs, tablets, mobile devices and expert in using their content, whether computer games, finding information on web sites, or working through school assignments. Advanced instruction is now offered in schools and from many other sources.*

Behrens' review (1994) goes on to describe how IL was adopted by the ALA (American Library Association) as a response to libraries' omission from key educational reports of the 1980s, particularly A Nation at Risk. Advocacy by Patricia Senn Breivik, in particular (see Breivik 1985), forcefully asserted the essential worth of the library to any educational mission, with IL seen as the point at which libraries could add most value, by bringing to bear their existing expertise in user education. The outcome of this campaign was the ALA IL standards (1989), which have gone on to shape the domain of IL in significant ways, both directly (for example, in their updated form, ACRL (2000), being used as criteria by which some US educational institutions are accredited) and indirectly (contributing to the idea that setting standards is the best way to instantiate IL in an educational system). Whether this move was beneficial for IL as a whole has been the subject of vigorous debate, not returned to here but see Andretta 2005, for example. It is evident from Burchinal's speech, however -- and his comment above -- that he saw responsibility for this educational task as diffusing more widely through society.

At the end of his paper Burchinal also points out that:

> *we need to give attention to preparing individuals who can anticipate and develop appropriate data teleprocessing and related telecommunications systems for whatever needs to be done -- in managing economic activities or providing educational and community services. The only real limit to the development of the automated systems is the shortage of people who can comprehend them, develop them, change them, and anticipate the consequences of their operations. As such systems become more sophisticated, people with the necessary perspective and understanding become scarcer. We may be deceived by the ease with which we can train technicians to do specialized tasks required by computers and information processing networks. What is critically needed are people who understand these new systems and how they can be applied to economic, health, educational, and community requirements. Individuals with these skills command a premium in the emerging post-industrial society.*

Though he does not specifically encompass this educational task under 'IL', a clear link is drawn between them. Proficiency with information tools is not therefore just a matter of use of the tools, but of understanding them; the assumptions that have gone into them, their potentials and possibilities. At the end, then, Burchinal's appeal is akin to Zurkowski's. Optimizing the possibilities offered by new information technologies requires a holistic educational program that goes beyond mere basic ICT skills into a deeper understanding of how information production and processing are changing transactions throughout society; and that this program should extend beyond universities and schools into professional education.

Read with nearly forty years' hindsight -- that is, nearly 40% of the way through "America's Third Century" -- the speech may seem to only hint at the present shape of IL. Taken as a single document it is merely a small, early step in the long and still ongoing task of defining IL as a genre (Bakhtin 1986), and had it not been cited in Behrens it may have been lost, not only by this author but others. However, read as a contribution to a wider, collective project, and looked at in combination with not only Zurkowski's paper but also contemporary works by Hamelink (1976) and Owens (1976) -- which both offer a more political view, in different ways -- Burchinal's speech offers a valuable insight into the evolution of IL. I hope that this version of the text, with this commentary, will serve as useful resources for scholars of not just IL but the history of LIS and education.

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The Communications Revolution: America's Third Century Challenge[***]

Lee G. Burchinal

[**Page 1**] In this bicentennial year, we are particularly mindful of our revolutionary origins. The year of 1776 was one of political revolution. Since then the United States has undergone two other revolutions. Both are technological. Both have altered every aspect of our society. The first of these technological revolutions was represented by the conversion of United States society from a preindustrial to an industrial society. The second is now in full swing and has been characterised by Dr Daniel Bell of Harvard University as the emergence of the world's first post-industrial society.

The American colonies were a pre-industrial society. Before 1800, more than 90% of our populationlived on farms. Life was a 'game against nature' as Dr Bell puts it, in which life was a struggle against the vicissitudes of the changing seasons. Power came from nature -- water, human and animal muscle. The strategic resource was raw materials -- food, fiber, lumber and some minerals. Problem-solving was based on tradition, common sense, trial and error, and experience.

By the mid-19th century, the US was well established as an industrial society. Population became concentrated near factories. Cities grew. Life for most became controlled by the production of things. We used created energy -- coal, oil, gas, electricity and more recently, nuclear power -- to add to our power to alter the landscape. Financial capital and labor became the strategic resources of production. Technology, which had been limited to the creation of artisans, switched to machine-generated products and rested on the skills of engineers and skilled and semi-skilled workers. Problem-solving shifted to empiricism and experimentation.

This was also the era of great mechanical inventiveness. Innovations, however, came from the brains of talented thinkers who generally remained ignorant of the discoveries and theories of contemporary scientists. For example, Alexander Graham Bell, our much heralded inventor of the telephone, knew nothing of James Maxwell's work on electromagnetism. Nevertheless, invention piled on top of invention. Technological development snowballed as the nation pursued unlimited economic growth.

Now, however, as we analyze our society, we see that another massive transformation is under way. We are passing from an industrial into a post-industrial society. The strategic resources of a post-industrial society are information and knowledge. By information, I refer to any type of data or facts about anything. Included are data about population, raw materials, manmade products, the environment, and all types of economic, commercial, and governmental transactions. Included are the data required for planning and managing economic and governmental activities and for making numerous personal choices. In addition, there is theoretical knowledge derived from scientific research about the workings of nature. Scientific knowledge about nature forms the basis of major new industries. Scientists, engineers, technicians and professional occupations supply the criticial skills in our post-industrial [**page 2**] society. This trend became particularly evident after World War 1. Before that time, an American scientist with a PhD rarely worked outside the university. Following the war, however, chemical engineering became a widespread profession in the US, and chemistry produced remarkable results for industry.

Chemistry was not the only field of growing scientific and technological progress. Physicists beganto open up new areas of progress in electricity and, later, electronics. In 1909, the General Electric Company recruited a promising young physicist, set him up in a laboratory, and permitted him to do basic research. That industrial researcher was Irving Langmuir, later to become a Nobel prize winner. In 1916, the Westinghouse laboratory also hired a PhD who was to become a world-renowned scientist, Arthur H. Compton. Other major industrial companies followed suit, set up laboratories for both applied and basic research, and hired scientists during the period between thetwo World Wars.

During World War 2 the present and growing values of electronics were forecast by the use of radar and the early computers. This was also the time when the seeds of the space age were sown and the greatest single example of scientific power -- the release of atomic energy -- was demonstrated. Of immense importance, of course, has been the invention of the transistor byBardeen, Shockley and Brattain, and the development of semiconductors to create

[***] *Typographical notes from A. Whitworth:* p. 11, two errors: 'Telecommunications' (second bullet point)' presumably should be followed by 'cost' Also, in the fourth full paragraph, first sentence - 'extricably' presumbly should be 'inextricably'

the microelectronics industry. More recently, basic research on the possibility of passing a molecular beam through an optical field has led to the creation of a maser and then a laser, which, in turn, gave rise to the hologram. Applications of these discoveries abound, but nowhere are they more evident than in the field of information and data handling. Computers, micrographics, and telecommunications have become driving forces in our information-based society.

Emergence of the post-industrial society does not mean that agricultural and industrial activities have disappeared or have become unimportant. Quite the contrary. Because agriculture has become so efficient, largely due to science and technology, only 4% of our population now producea substantial amount of our food, plus that needed by a large part of the rest of the world. Like agriculture, industry depends on scientific knowledge for its new growth. At the same time, industrial and commercial transactions increasingly depend on information and data processing. Examples include automated factories; reservation services for airlines and hotels; nationwide inventory control and sales records; and national and international news, entertainment and communication services. These and many other industrial- and service-based jobs are information processing jobs, regardless of the goods or services involved. In addition, many other occupations, including research, development, teaching and various other professional jobs, can be described as information generating, processing or using activities. Collectively, they constitute the information industry. Just as agriculture is the base of the pre-industrial society. and [**page 3**] fabrication workis dominant in an industrial society, information or knowledge occupations characterise the post-industrial society.

This conception may be difficult to grasp. We are attuned to physical representation of industrial society, such as factories and transportation systems. In its early stages, the information industry was also highly visible. It began as the graphic arts industry. While dramatically different from thehandwritten manuscripts of previous ages, printed products were still physical items. They were manufactured (printed), shipped and stored just like the things generated by factories. But with advances in printed technology, democratic values, science, and public education, the volume of printed material increased annually. The curve remains ever upward.

Library holdings from several points in time illustrate the long-term information -- if not knowledge -- expansion. Just before the invention of the printing press, a highly educated man's library, such as Chaucer's, might contain as many as twenty manuscripts. These he read and studied extensively. The first non-theological library in colonial America, organized in 1731 under the leadership of Benjamin Franklin, initially consisted of 46 titles. Ten years later it had grown to an impressive collection of 375 volumes.

A few years later and a little further south, another library was budding along the Potomac. Its collection of 3000 volumes went up in smoke in 1814 when the British burned parts of Washington.The next year, Thomas Jefferson provided the Library of Congress a second start with the sale of his collection of 6.488 volumes. Since then the growth of the Library of Congress has mirrored the ever-increasing worldwide production of literature. By 1900 the collection numbered 850,000 volumes. At the outset of World War 2, the collection stood at almost 6.4 million volumes. And today it exceeds 70 million pieces of information.

Numerical increase is only one dimension of the "information explosion". Diversity of form is another. Library holdings illustrate this point as well. Today the Library of Congress -- and other major libraries -- contain books, journals, newspapers, technical reports, manuscripts, maps, microfiche and microfilm, motion pictures, video tapes, recordings, photographs, prints, posters, and computer tapes, disks and other forms of electronic storage.

Growth in the scientific and the technological literature represents another indicator of the increase in the information base of our society. The first scientific journals, one French and the other British, go back to the mid-seventeenth century. Since then, the scientific literature has been doubling about every 10 to 15 years. As shown in figure 1, over 100,000 journals have been published somewhere, some time: today, there are approximately 50,000 current titles in some sixty languages. About 2 million new articles or items are added annually to [**page 5** [*page 4 is figure 1*]]the worldwide scientific and technological literature, With such a growth, it is not surprising that new literature searching tools should develop as well. The first of these abstract journals began in the early 1800s: now there are over two thousand scientific and technical abstracting/indexing publications.

During this period of tremendous growth in scientific and technological (S&T) publication, there was relatively little change in the methods used. All were printed publications. But, beginning just about ten years ago, a remarkable change began with computerization. Today over 200 abstract journals -- or their modern equivalent -- are available in machine-readable form. The history of onecommercial firm illustrates growth of computer searching of S&T databases. This firm first offered nationwide searching from computer terminals (called online searching) in 1965. It began with one data base. By 1973, eleven separate files were offered; today, over forty databases can be searched. The number of records available for online searching continues to rise. Again, the experience of this firm is illustrative: from 200,000 in 1965 to 2.1 million in 1973 to 8 million in 1975. Meanwhile, contrary to about everything else in our economy, costs are plummeting. Using an index of 100 for 1970 costs for online searching, 1973 costs had dropped to 40, and 1975 costs to 20. As we will see later, further decreases can be confidently

expected.

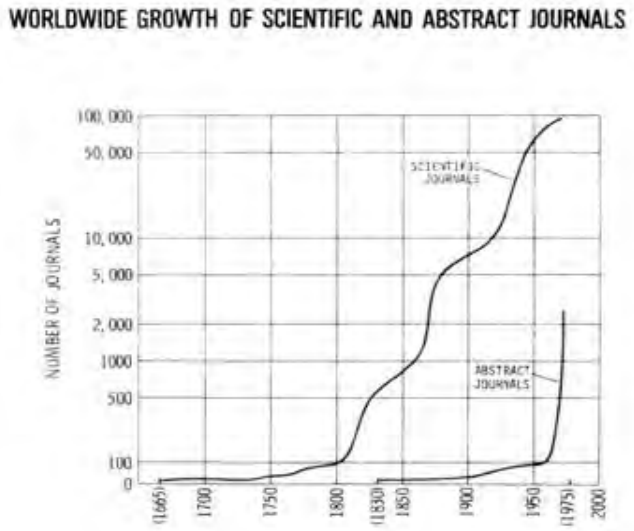

Figure 1 [page 4]

Conversion of printed abstract journals to electronic form also illustrates the invisible nature of the information industry. Electronic means for recording, distributing and presenting literature and data will dominate the scene in the late 1980s. In contrast to use of printed journals and reports, wewill rely more heavily upon display at a terminal of information called from remote locations. Clues to publication will be magnetic tapes from word-processing machines and other forms of electronic storage.

The nonvisible nature of the information industry adds to the difficulty of understanding its significance. The man on the street is visually aware of the industrial base of society. It is all aroundus. It is represented by factories, transportation facilities and products. The information society equivalent to bulk transportation systems are electronic communication systems. These include voice and data communications links, whether by wires, microwave or satellite linkages.

But the transformation remains unseen. Likewise, the occupational shift to information-related jobshas been unnoticed in society at large. Yet large and significant shifts have occurred. There are two ways of documenting the trend toward the dominance of the information industry in our society. One consists of examining trends in the portion of the Gross National Product (GNP) attributable to different economic sectors. The other focuses on the percentage of the labor force in various major occupational groupings.

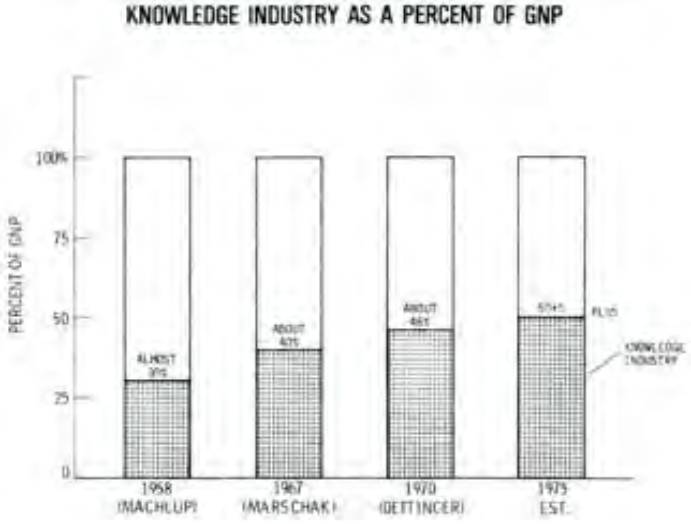

Figure 2 [page 6]

[**page 7**]Let us look first at the GNP data. Several analysts have tried to estimate what proportion of the GNP is accounted for by activities concerned with generating, processing, disseminating and usinginformation and knowledge (figure 2). The first estimate was made in 1958 by Professor Machlup in his book, *The Production and Distribution of Knowledge*. He put the figure at nearly 30%. In 1967, Professor Marschak reworked available data and raised the estimate to almost 40%. Three years later, Dr Oettinger further upped the figure to 46%. Today, experts believe that over half the GNP is contributed by the information industry.

Analysis of labor force data leads to the same conclusion. Here we are indebted to analyses developed by Marc Porat and Dr Edward Parker from Stanford University. Their definition of information occupations include those jobs in which:

- Information is a final product. This includes the newspaper and printing industry; broadcasting and motion picture; telephone and telegraph; libraries and postal service.
- Information is a major intermediate product. Included here are financial institutions; real estate; legal; advertising; education; engineering and architecture; accounting and auditing; governmentadministration and commercial research and development (R&D).
- Information industry. Occupational fields in this case include computer and communications; scientific instruments; and office, computing and accounting equipment manufecture, sales and service.

Remaining occupations are classified as being in non-information industries.

Using these definitions, the Stanford researchers traced trends in US information and non-information fields since 1860 (figure 3). Information occupations started at about 5% of the work force in 1860 and remained approximately 10-15% until 1950. Immediately following World War 2, occupations in the information sector exploded in size and grew rapidly. During the present decade (1970-1980), the information occupations emerged as the largest group in the work force. It is unlikely that this trend will reverse.

Figure 3 [**page 8]**

Porat and Parker undertook a more detailed analysis. They divided the work force into four major independent categories: agriculture, industry, services and information. Independence was achieved by separating information jobs in agribusiness, such as researchers, sales persons, accountants, secretaries, and other information jobs from other agricultural jobs. The industry classification [**page 9** [*page 8 is figure 3*]] included blue-collar plus all jobs not classified elsewhere. Service cluster includes domestic, repairmen and public service workers engaged in non-information work (policemen, firemen, or sanitation workers). While more illuminating, the resultsare the same as before.

But, with these distinctions, we can identify several separate trends (figure 4). Prior to 1860, the largest labor group in the US was the agricultural, comprising 36% of the work force. By 1900, industry had begun to take over, absorbing workers from the countryside into the urban factories. At this time, 20% of the work force was in services, largely personal and domestic, while information workers amounted to only 10% of the labor force. As the agricultural sector contractedand receded to its present 4% of the work force, the industrial sector grew rapidly. Between 1935 and 1955, the US was predominantly an industrial society, peaking in 1950 with about 65% of the

work force.

Around 1945, we had almost equal proportions of agriculture, services and information workers, each around 12% of the work force. Services and agriculture had been receding slowly, and information had been increasing. After this period, however, the information sector grew very quickly in proportion, not by pulling people away from the industry sector (whose membership in absolute terms grew somewhat) but by capturing most of the new entrants into the labor pool. In the late 1960s the information sector surpassed a quickly dwindling industrial sector, and is now by far the largest single group. These curves closely mirror Daniel Bell's thesis that the United States has progressed through three stages -- from agriculture to industrial to post-industrial; and that we are now firmly embarked on the third era.

Trends towards an information-based economy are well established. A number of driving forces stand behind these trends. One is the search for more efficient and cost-effective ways of producinggoods and services. Applied research and development expenditures are an indication of this force. Another is expenditures in basic research in order not to deplete the stock of theoretical knowledge. Further, R&D expenditures have shifted to the communications field. In recent years, aerospace dominated United States R&D. In 1973, R&D on electronics and telecommunications took over the lead. From this research will come future information-processing and telecommunications technologies, industries, systems and jobs.

Another driving force is the cost-effective attractiveness of electronic-based operations. To illustrate:

- Computer costs are declining exponentially, while cost/performance is increasing similarly. This includes costs and performance for mainframes, mini-computers, micro-processors, and related storage devices.
- [**page 11** [*page 10 is figure 4*]] Costs for terminals are also declining while performance is constantly improving.
- Telecommunications, which have remained high relative to computing operations, are now declining and will drop drastically in the future. [*see editorial note on first page*]

In contrast, conventional communication, based on the printed word and postal services, will continue to increase in cost.

Further impetus for accelerated development and use of communication technologies comes from our desires to conserve energy. In contrast to moving people, which represents high-energy consumption, communications based on audio or video transmission or computer conferencing can allow communications and decision-making, without the costs of transportation and highenergy consumption.

The net result will be to accelerate communication via electronic networks. As a result, more jobs and personal experience -- banking, purchasing, and communications with friends and work associates -- will be based on use of terminals.

Thus, the electronic media and the post-industrial society are extricably intertwined [*see editorial note on first page*].

Figure 4 [page 10]

Universities have recognized this fact. Engineering, science, business administration and other curricula include instruction in computer operations. Computer, library, and information science instruction is in healthy ferment. Individuals initially educated in one of these fields move easily to the other and, further, to a wide range of jobs in the public and private sectors. As welcome and important as these changes are, two further and even more significant improvements, I believe, are necessary if we are to reap the full benefits of the coming communications revolution.

First, we should set about systematically to create "information literacy" for all adults in the nation, so each can function effectively in our emerging society. Second, we should begin preparing individuals who will be able to comprehend and apply our new communication capabilities creatively across the spectrum of society's needs so that we fully benefit from the potential of our new technologies.

Information literacy goes beyond conventional literacy -- the ability to read and write in acceptable, or at least passable, English. Regardless of how successful we have been with conventional literacy, we need to look ahead to achieving a new kind of national literacy -- information literacy. To be information literate requires a new set of skills. These include how to efficiently and effectively locate and use information needed for problem-solving and decision-making. Such skills have wide applicability for occupational as well as personal activities. Part of such competency includes comfortable use of a computer terminal for sifting through available information from various data banks to select useful data for resolving the problem at hand.

[**page 12**] No college graduate today should be without such skills. Consider our 1977 graduates.By the year 2000 they will be in their mid-careers. By then, many will have substantial management responsibilities. Management roles will be greatly influenced, if not dominated, by automated communications. Even by 1990, only thirteen years out, all indicators point tosubstantially electronic means of distributing information. Freshmen entering the labor market in less than ten years face similar prospects. Job performance, including management competence, will depend upon information literacy as well as competency in one's chosen field.

Also, if our present forecasts are correct, computer-terminal devices will be common in the home within a decade. From such devices we will do our banking, shopping, plan vacations, and communicate with friends. We will have our choice of voice, digital, graphic or pictorial forms of presentation. All family members will use such devices, just as pre-school children today master the telephone, record and tape players, and television sets.

As these technologies become more common, elementary schools will take over the responsibility for creating information literate citizens. Universities, however, can ill afford to wait. Also university experience as in so many fields, can become the basis for subsequent school programs.

Second, we need to give attention to preparing individuals who can anticipate and develop appropriate data teleprocessing and related telecommunications systems for whatever needs to be done -- in managing economic activities or providing educational and community services. The only real limit to the development of the automated systems is the shortage of people who can comprehend them, develop them, change them, and anticipate the consequences of their operations. As such systems become more sophisticated, people with the necessary perspective and understanding become scarcer. We may be deceived by the ease with which we can train technicians to do specialized tasks required by computers and information processing networks. What is critically needed are people who understand these new systems and how they can be applied to economic, health, educational, and community requirements. Individuals with these skills command a premium in the emerging post-industrial society. Universities with foresight and resolve can be in the vanguard in meeting the nation's future needs in this critical area.

As we enter our third century, the post-industrial society and its information and communication base present numerous challenges. I am confident we will apply these new resources for the benefit of all our citizens. The communications area allows us to focus three of our outstanding and unique capabilities. These are our confidence in ourselves and our optimism about what we can accomplish; our ability to sustain technological innovation; and our management expertise.

Here is a challenge fitting for our third century….

Author Index

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