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First papers from San Juan – and more

Stephen Parker

This year we changed the procedure for selecting papers from the World Library and Information Conference for publication in IFLA Journal. As a first step, members of the Editorial Committee were invited to make their own recommendations from the San Juan conference papers; in the second stage, any recommendations submitted by Section committees will be reviewed by Editorial Committee members in the usual way. However, Sections were not specifically invited, during the conference, to submit their recommendations; it was left to the initiative of the Sections to submit recommendations if they wished to do so.

This issue includes four Editorial Committee selections, one early Section recommendation, and two papers submitted by their authors and reviewed by members of the Editorial Committee. The authors come from China, Croatia, Serbia, Spain, Thailand, the UK, and the USA, and their topics are as varied as their countries of origin.

We begin with a philiosohical approach to the future of libraries and librarianship. In "As for the future, your task is not to foresee it, but to enable it", Derek Law of the University of Strathclyde notes that libraries run the risk of becoming obsolete unless they develop a new and digitally relevant philosophy based on the unique selling point that means we are not competing with Google or Microsoft. Such a philosophy would determine our approach to users, services, content and our own skill set. For many people today reading and writing are becoming optional lifestyle choices and not the normal requirement of the intelligent individual. Libraries must provide services and collections relevant to their needs rather than expect them to change to fit our preconceptions.

The story of one public library system's successful attempt to adapt its services to meet the needs of people who are not yet using the library is told in "65+: Engaging underserved patrons – a success story!", by Jasmina Ninkov and Vesna Vuksan of Belgrade City Library in Serbia. In order to identify groups that were not using the library and determine the reasons, the library conducted market research in 2009, not only to identify non-user groups, but also to engage the largest underserved group and develop services to meet their needs. This led to the introduction of new services aimed specifically at non-users over the age of 65, and the results showed that active communication with patrons and potential members through different channels including applied research and effective data collection helps to build a library network that can, in turn, build a better community.

The adaptability which will be increasingly required of librarians in the future is just one of the "Key skills and competencies of a new generation of LIS professionals" identified by Pussadee Nonthacumjane of Chiang Mai University in Thailand. After an introductory background of the digital era as it impacts on the changes occurring in libraries, the paper goes on to presents a review of the literatures on skills and knowledge of LIS professionals working in the digital era, classifies the key skills and competencies of a new generation of LIS professionals as personal skills, generic skills, and discipline-specific knowledge, and finally presents the image of the new generation of LIS professionals.

We turn next to the first of four papers dealing with more technical aspects of library and information work. Dealing with a topic rarely touched upon in the pages of IFLA Journal, "Finding film resources: Challenges of formats, policies and intranets", by Michelle Emanuel of the University of Mississippi Libraries, notes that, as interdisciplinary cultural studies programs become increasingly prevalent in North America, many scholars trained in the humanities find themselves drawn to study film from a similar perspective. However, finding film source materials is complicated by library lending policies that do not extend to media items, or to foreign films in formats different from those collected by the researcher's own institution. This article examines such problematic issues for patrons looking for films and includes personal experiences at several research institutions in

both Los Angeles and Paris, with advice and insight for the potential researcher writing about film for academic purposes.

Providing multilingual access to information on Chinese art is the subject of the next paper, "Methodologies for multilingual information integration in the domain of Chinese art", by Shu-jiun Chen, Ching-ju Cheng and Hsueh-hua Chen from Taiwan. The paper reports on two multilingualized research projects and discusses a proposed methodological framework for Chinese-English interoperability between thesauri, including four modules on Translation, Mapping, Localization, and Creation. The paper also discusses the steps involved in building English metadata, and looks into key issues faced by the two projects, including the varying degrees of semantic equivalence between Chinese and English terms, metadata translation, and metadata quality.

In the age of Google, Yahoo! Bing and the like, it might seem that there is no longer a place for classification schemes in information work. This is emphatically not the view of the author of the next article, "UDC on the Internet: Theory and project in evolution for use of indexing and retrieval systems", by Mariàngels Granados Colillas of the Biblioteca de Catalunya in Barcelona. The starting point of the article is to compare the features of faceted classification and ontologies with a re-evaluation of UDC (Universal Decimal Classification) as an analytico-synthetic classification system. The paper proposes a theory based on the post-coordinated use of LCSH (Library of Congress Subject Headings) and the setting-up of their equivalence with UDC for indexing, which will represent an advance in the field of information retrieval in the future context of the Internet. The retrieval process is based on the generation of clusters characteristic of data mining and the linking of existing controlled vocabularies and free language in all languages with the corresponding UDC notations. This will be achieved by making UDC compatible with existing classifications, thus profiting from all the knowledge structured so far, thanks to the creation of a suitable format.

The final paper in this issue is also on a technical theme. In "UNIMARC and linked data", Gordon Dunsire, an independent consultant from Scotland, and Mirna Willer of the University of Zadar in Croatia, present arguments for and recommendations relating to the representation of UNIMARC formats for bibliographic and authority data in RDF (Resource Description Framework), the W3C standard for structuring data in Semantic Web and Linked Data environment. This is a continuation of work already started by IFLA groups in representing International Standard Bibliographic Description and the conceptual models, Functional Requirements for Bibliographic Records, Functional Requirements for Authority Data and Functional Requirements for Subject Authority Data. The authors recommend that the Permanent UNIMARC Committee propose to IFLA the funding of the development of UNIMARC representation in RDF as a research and development project.

This issue also includes the Presidential Address by Ingrid Parent, President of IFLA for 2011–2013, delivered at the World Library and Information Congress, San Juan, Puerto Rico, 2011.

An extended News section in this issue includes some important items relating to IFLA's longstanding partner and supporter, UNESCO. The first item reproduces an interview with Jānis Kārklinš, UNESCO's Assistant Director-General of Communication and Information, which was originally published in IFLA Express duting the San Juan conference. The interview highlights the important and longstanding relationship between IFLA and UNESCO; a relationship which means that all IFLA members should be concerned about the fact, announced in another of the UNESCO news items, that the United States intends to cut its funding to UNESCO because of the UNESCO General Conference's decision to admit Palestine to membership of the organization. Since the US provides some 20 percent of UNESCO's budget, this decision poses a serious threat to UNESCO ability to maintain its many cultural, educational and scientific programmes all over the world – programme, many of which inevitably impinge upon library and information work in general and the activities of IFLA in particular.

Article

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"As for the future, your task is not to foresee it, but to enable it"

(Antoine de Saint Exupéry)

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Abstract

Libraries run the risk of obsolescence unless they can develop a digitally relevant new philosophy of what they are for. We need to identify the niche which differentiates what we offer, the unique selling point that means we are not competing with Google or Microsoft. Such a philosophy will then determine the approach to users, services, content and our own skill set. The world is increasingly populated by those with different literacies, for whom reading and writing in the way past generations have understood these are becoming optional lifestyle choices and not the normal requirement of the intelligent individual. We must provide services and collections relevant to their needs rather than expect them to change to fit our preconceptions.

Keywords

library purpose, library obsolescence, library philosophy, library services, libraries and literacies, future of libraries

Changing users

The world is increasingly populated by the a-literate, for whom reading and writing in the way past generations have understood these are becoming optional lifestyle choices and not seen as the normal requirement of the intelligent individual. It should be understood that a-literate is not a pejorative term, but a recognition of the mushrooming growth of literacies which differ from the historic norm – not better or worse, but different. The notion that the Internet has changed the world and its citizens fundamentally and that the digital natives have arrived is hardly new, but once it enters the heart of the establishment we may perhaps grant a certain gravitas to the belief in such change. Both church and state have reached this conclusion and there can now be little room for the sceptic.

The Catholic Church has accepted that the world has changed. For World Communications Day 2010, Pope Benedict XVI described the role of cyber priests. He proposed a new skill for priests to help in the fight to spread the gospel: "Go forth and blog" and he urged priests to use all the multimedia tools at their disposal to preach the gospel. The faith was to be made visible on Facebook and also on the papal website Pope2You (http://pope2you.net/).

At almost the same time, the Lord Chief Justice of England has reflected on the growing number of trials affected both generically and specifically by the abilities of the Internet generation and of the need to reappraise the whole concept of trial by jury. He states that people chosen as jurors no longer seem able to listen to sustained oral presentations for hours at a time and then draw conclusions of guilt or innocence. He also notes the growth of situations where jurors are admonished as they attempt to perform independent research, such as using Google Maps to view crime scenes, rather than relying solely on evidence used by lawyers or the police.

This different literacy has its own clear boundaries. The a-literate expect:

- instant results
- convenience (which is seen as superior to quality)
- images are at least as important as text

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- if it's not on the web, it doesn't exist
- cut and paste is a legitimate alternative to original thought
- just enough material for the task in hand, not everything.

Perhaps the ultimate if slightly tongue-in-cheek application for this literacy is the Ten Word Wiki (http://www.tenwordwiki.com/). Rather like the haiku it attempts to distil if not wisdom then at least information in exactly ten words. Pleasingly, it defines *librarian* as "Superhero who can find anything. Penchant for cats and cardigans", while *book* is "Bundles of wood pulp and pictures/words; doesn't need batteries". We also know that the average time spent reading an e-article is three minutes. It is then important for libraries and librarians to grasp that they must adapt to these new norms rather than attempt to change users to the old norms.

Although the change in users is often see as a generational issue, it is in truth a much more complex change and applies just as much to researchers of whatever age as well as students born into a digital world. New forms of content such as JoVE (*Journal of Visualised Experiments*: http://www.jove.com/) or social networking sites/research fora such as OpenWetware for biologists (http://openwetware.org/) are beginning to make their mark. What is much less clear is who will manage, archive and catalogue these activities as the pioneers move on. This is both a huge challenge and a huge potential opportunity for the profession to deploy traditional skills in novel environments. To this one might add an exciting new role as partners in the management of research. As governments and funding agencies turn increasingly to measuring research impacts, and as evidence grows on how access to publications impacts on research awards, librarians have a huge opportunity to influence institutional success. Everything from the quality of repositories to the quality of metadata to training researchers on how to maximize citations can positively affect the institution and how it is perceived publicly, as well as supporting the individual researcher or department.

Changing services

The landscape in which libraries must now operate is a landscape where the maps of the past are of little value but the central tenets of our professional geography remain relevant as fixed points – albeit in need of complete rethinking. Librarians have always had a strong service ethic, but it has always been built around how we support users once they cross the library threshold, whether physical or electronic. In the new landscape, there is a need for a sort of reverse engineering in which successful libraries will build their services around the user's workflow; libraries and their collections must be available to users when and where needed rather than expecting users to visit the library at times convenient to the staff. The Ithaka Report of 2009 (http://www.ithaka.org/ithaka-s-r/research/faculty-surveys-2000-2009/faculty-survey-2009) makes the unhappy if unsurprising comment that 'basic scholarly information use practices have shifted rapidly in recent years, and as a result the academic library is increasingly being disintermediated from the discovery process, risking irrelevance in one of its core functional areas'. This is just as true of students as it is of researchers, but while academic staff might at least accept that they need librarians to buy materials to support research, students are much more likely to need support services to teach them how to undertake research and to find the relevant materials that the library already owns or has access to. The studies by the Centre for Information Behaviour and the Evaluation of Research (CIBER) at University College London show that there are very real needs to be met in terms of training users how to discover the information they might need and that users are not nearly as competent in information management as they suppose.

Libraries were some of the earliest adopters of computing, with a history of systems development stretching back almost 50 years. In truth what we largely engaged in at first was mechanization of existing processes, but nonetheless librarians were quick to understand the potential of new technology. But it is arguably the case that we misunderstood the potential and impact of the Internet. Huge professional effort was put into retrospective catalogue conversion and libraries poured investment first into Online Public Access Catalogues (OPACs) and then into library websites based on the premise that 'If we build it, they will come'. Librarians imagined a sort of utopia where we were building centrifugal hubs which would attract users to information on how to find information. It was then painful to discover that in reality we sit not at the centre but at the edge of users' digital worlds. Website traffic figures can offer a sobering reminder that our creation of OPACs has been like building gold-plated dinosaurs. Users largely bypassed our complicated facilities in favour of the ease of searching which Google provides. It was also almost humiliating to discover how companies such as Amazon or consortia such as Abebooks could aggregate information and services in ways which met user needs rather than offering the user challenges.

It is not at all clear that we have learned the lesson, that if our users don't want it, we shouldn't make it.

We need a much more refined understanding of the larger forces at work before we develop specific tools. Some of the signs are encouraging, but some are not. Many libraries and librarians have rushed to become involved in social networking sites, but few have stood back to observe the large societal forces at work. The issue of how online collectivism, social networking and popular software designs are changing the way people think, process and share information, raises such questions as what becomes of originality and imagination in a world that values 'metaness' and regards the mash-up as 'more important than the sources who were mashed'. But such conceptual ideas go largely undiscussed in the professional literature although producing serious thinking elsewhere. Libraries have preferred to become happily engaged in almost every application from Facebook to Second Life without perhaps considering how service philosophy should change beyond a rather hackneyed concept of being where the users are. As a result individuals become committed to the specific technology as a mechanism for delivering old and existing content rather than considering the underlying values of the application and are reluctant to give up what has often become a very personal investment. And yet there are examples of good practice and good thinking, at least in isolation. Kelly has suggested that the key definers of social networks for libraries are:

- Application areas where users can easily create content
- Syndication/alerting technologies which share news
- A culture of openness which makes content available for sharing and reuse
- A culture of trust which encourages the sharing of content, bookmarks and discussion
- Social sharing services which share images, bookmarks and stories
- And social networking which allows everyone to implement the above. (Kelly 2008)

This kind of conceptual thinking should be a prerequisite which underpins any decision to select from the available tools, or else we run the risk of further littering the web with inactive library blogs, lifeless virtual library communities, tweets which reach only other librarians and out-of-date Facebook pages.

It is clear that social networking (popularly lumped together as Web 2.0) has had a profound effect on the ways in which users communicate and in how they seek information for whatever task is in hand. The danger for libraries is that as they move to occupy these spaces they find that users have moved on to the next space. What libraries must really do is to try and develop a more theoretical or philosophical understanding of their role in supporting users in such environments, irrespective of the particular product at hand. For the moment the approach seems to be to treat these as new spaces for providing traditional information rather than as new ways of communicating. The holy grail in particle physics is the 'Grand Unified Theory' which it is hoped will lead to a 'Theory of Everything'. There is a dearth of strong philosophical debate in the library profession and perhaps the most important step we can take is consciously to begin the search for our own Grand Unified Theory of Everything.

There is a large literature on digital and hybrid libraries, but librarians remain curiously (perhaps sentimentally?) fond of the concept of library as place. And there are good reasons for this. It can be a place to promote enduring values (Weise 2004); it is 'the centerpiece for establishing the intellectual community and scholarly enterprise' (Freeman 2009); and a place to see and be seen while working privately (Gayton 2008). The need for the physical library in the student environment still seems secure, although researchers and academics have long since abandoned the library as a place of first resort, in favour of the Internet. Yet very little thought has been given to the cost of building and maintaining that physical environment. Possession of a library is an unquestioned and therefore uncosted part of the infrastructure of being a university (with the occasional dissenting voice now being heard as grimmer economic realities strike home). Very little thought has been given to the cost of running libraries – beyond staffing budgets – and it is very difficult to acquire data on the total cost of ownership. This is just beginning to surface as an issue, if only in the light of the green agendas which have become fashionable as institutional budgets have come under pressure. Most organizations meet utility bills centrally, not departmentally, from the total corporate budget, before dividing budgets between departments. Libraries are unusual compared with many departments in that they tend to occupy a whole building. So attributing utility costs to them would be quite straightforward if very unusual. When results can be discovered, they are surprisingly large and should lead us to consider exactly why we spend so much on preserving materials, particularly those materials commonly held elsewhere.

Ironically, universities tend to be places where there is a broad spectrum of ecological sophistication and where academic departments often work on topics such as sustainable design and operations. Even such basic practices as simple as materials recycling and attempts to move to carbon neutral footprints,

which are increasingly seen in our domestic environments remain far removed from library orthodoxy. Some exciting work has begun on this area and it is very likely that the green movement in libraries will grow as budgets decline. Perceptive librarians will embrace the chance to be campus exemplars.

Changing content

Content too is changing and there is a need to change direction and embrace a new set of imperatives. We need to lose some of our obsession with digitizing the paper we already possess and focus more on the mushrooming and largely uncontrolled boom in born digital material; we need to re-assert our position of trust in the quality assurance of material; we need to rediscover the importance of working together with other libraries in the aggregation of material. Libraries have tended to focus either on purchasing digital content or on digitizing the paper collections they already possess. Now it can be argued that the huge growth in the purchasing of electronic journals and e-materials has been in response to researchers needs. Indeed, a recent Research Information Network report (Research Information Network 2010) looked at how researchers interacted with journal websites and analyzed what the impact had been. It concluded that researchers show significant expertise when using e-journals, that they find the information they need quickly and efficiently, and that greater spending on e-journals was linked to better research outcomes. While we are clear on how to manage commercial and digitized content it is odd there has been no substantial professional debate on born digital content and how the huge explosion of such content should be collected, organized, managed and discovered. As a result, academic and research staff increasingly see librarians as managers of the purchasing process rather than collection builders in support of research. Yet collection building and more particularly the aggregation of resources at a system level does demonstrate one of the most important elements we can contribute to a digital future. The always thoughtful Lorcan Dempsey reflects on this in relation to the long tail and links it to classic librarianship:

> "It is not enough for materials to be present within the system: they have to be readily accessible ('every reader his or her book', in Ranganathan's terms), potentially interested readers have to be aware of them ('every book its reader'), and the system for matching supply and demand has to be efficient ('save the time of the user'). It is time for libraries to develop agreed strategies for digital collection development. Thus far efforts have been somewhat piecemeal and have tended to focus on digital repositories. Initially seen as tools for collecting research output, there has been a growing realisation that repositories could be one of the key building blocks of future library development hosting a whole range of types of digital resources. But this has to be coupled with an understanding of a raft of what may seem obvious infrastructural elements to librarians but are not necessarily so to scientists: long term archiving, bibliographic control, metadata, version control, authority control, audit trails, usage data, IPR management, navigation and discovery, delivery and access." (Dempsey 2009)

Libraries have always acquired content which is distinguished because of the collections which are formed, rather than necessarily the value of individual items. The Internet has allowed the possibility of aggregating content from numbers of collections and sources to provide web scale collections. Libraries can then add value through the provision of federated searching, metadata tagging and linking to tools such as Google Maps which can enrich the underlying sources. A large number of projects have dealt with aggregation, usually of content, but also of skills, in ways which attempt to combine resources to meet the needs of users. Each is appropriate in its own context although many motivations are displayed. The key consideration in each is the way in which value has been added and to what extent. The following are good examples of quite different approaches.

The *Europeana Project* (http://www.europeana.eu/portal/) is fairly overtly a political project and a European response to the perceived dominance of Google. Partly because of its European Union origins, its key goal is to be multilingual. The project brings together the records of over 6 million cultural objects, appears to use size as its defining goal and is organized by the museum, archive and library communities.

Project Nines (***N**etworked **I**nfrastructure for **N**ineteenth-Century **E**lectronic **S**cholarship*) (http://www.nines.org/) on the other hand involves a (largely American) scholarly community which has peer reviewed over 600,000 objects collected from 118 sites for 19th century scholarship and aims to:

- serve as a peer-reviewing body for digital work in the so-called 'long' 19th century (1770–1920), both British and American
- support scholars' priorities and best practices in the creation of digital research materials
- develop software tools for new and traditional forms of research and critical analysis.

It has strong content but is arguably weaker on information management skills.

Project Bamboo (http://www.projectbamboo.org/), in contrast, focuses on tools rather than content and involves both the support and academic communities. It aims to be a multi-institutional, interdisciplinary, and inter-organizational effort which brings together researchers in arts and humanities, computer scientists, information scientists, librarians, and campus information technologists to tackle the question: *How can we advance arts and humanities research through the development of shared technology services?* The project is mapping out the scholarly practices and common technology challenges across and among disciplines to discover where a coordinated, cross-disciplinary development effort can best foster academic innovation.

The University of Texas has chosen a more traditional approach combined with a novel attitude to born digital material for its human rights materials and as a way of meeting institutional academic goals (Heath 2009). It is a rare example of collection building being combined with web tools ranging from Google maps to video clips of interviews to add significant value to the originals. It has a clear set of priorities:

- bulk harvesting of human rights sites from the World Wide Web (WWW)
- custom harvesting of human rights themes from Internet
- preservation and disclosure of born-digital documentation.

It applies archival principles ranging from selection to dark archiving of material relevant to outstanding trials, e.g. in Rwanda, and it relates the collection quite explicitly to the mission of the institution.

Changing skills

Each of the changes described above has implications for the sort of skills we should expect professional staff to display and possess. We must also remember that by and large the staff who will be needed to manage these changes in 2020 are already in post and even in mid-career. Therefore the most important requirement is to develop a reinterpretation of the role of libraries in the new landscape. There needs to be much better understanding of the value we add to the institutional mission before we can determine the skills and services we should develop. However it does seem safe to say that we need to step back a little from the cult of managerialism which has dominated the decades of growth in the 1980s and 1990s, when budgets, staff and collections burgeoned and grew in complexity. We must develop more identification with organizational goals and even display more empathy with the organization. The return of the scholar librarian would identify us much more closely with the organizational mission.

Academic use. As research environments become more complex, it seems sensible to explore how far scientists can manage their own infrastructure and how far they need support to manage this, in exactly the same way as estates professionals, human resources professionals and health and safety professionals manage elements of research support. Again there is a huge opportunity to deploy the classic skills of the librarian in novel ways. What seems destined to become a classic case of not managing information happened in 2009–2010 at the University of East Anglia, where the science underpinning climate change was challenged because the information had not been properly managed (Climate Change Review 2010). This need to manage information has in some libraries led to a revisiting of the concept of the subject librarian now described as 'embedded'. There is even a neat coinage of 'feral' librarians for those working in librarian positions but without library qualifications. Kesselman and Watstein (2009) have suggested 'embedded librarianship is one of the prime tenets of a user-centered library'. It is only by experiencing at first hand exactly how users manage their information, their information seeking and their workflows that librarians can begin to design and offer services which truly add value and are responsive.

Student use of libraries. An important OCLC survey (OCLC 2006) should have given librarians pause for thought. It showed that:

- 89 percent of students use search engines to begin a search
- 2 percent use a library web site
- 93 percent are satisfied or very satisfied with this approach to searching
- 84 percent are satisfied if librarian-assisted.

This reduction in satisfaction when librarians intervene does not suggest that all the effort going into information literacy training has been productive. This may reflect traditional approaches and what has been called the 'eat spinach syndrome.' When all that a student seeks and requires is just enough information for the task in hand or a short cut to the answer, library staff still insist on showing them how to undertake the task properly. The minatory approach requires the user to do it properly or not do it at all; eat your spinach, it's good for you. This is no doubt well intentioned and worthy but obviously does not reflect what users want. Much more effort is needed

to identify, then meet, user needs rather than holding on to the past.

If librarians wish to be real stakeholders in the teaching and learning process, this will require a fundamental rethinking and refashioning of the concept of user support. The key will be the ability to add value. Not just to manage collections of learning objects; to manage and preserve the wiki and blog spaces; to manage the content links and licensing – these are all well within existing library competences – but to provide the hotlinks and metadata which will allow the user to navigate with ease.

Work by the Centre for Information Behaviour and the Evaluation of Research (CIBER) has clearly demonstrated that users significantly overestimate their skills and their ability to manage information. Students will often give up after their initial searches, assuming they have completed the research process, believing that if it's not instantly discoverable on the Web, it doesn't exist. Easier access to full-text articles and content online also seems to have changed students' cognitive behaviour. Rather depressingly for librarians, such easier access is allied with very short spells of time spent reading the material. Electronic content encourages browsing, cutting and pasting, almost certainly accompanied by increased plagiarism. However, there is more than a suspicion that this is usually done through ignorance rather than malice. Research by the CIBER group is unequivocal in its findings, based on huge volumes of log analysis. The shorter an item is, the more likely it is to be read online. If it is long, users will either read the abstract or squirrel it away for a day when it might not be read (digital osmosis). Users seem to prefer abstracts much of the time, even when given the choice of full text. In short they go online to avoid reading (Centre for Information Behaviour and the Evaluation of Research 2007).

Now libraries might argue that they have always embraced a service philosophy. Perhaps the change which is needed is to recognize the requirement to offer what users need, when and where they need it, rather than to provide services we think they should have.

Conclusion

Librarians have the capacity and the curiosity to embrace and employ the latest digital tools and services. Rethinking the concept of service is also well within the competence of libraries. The science fiction writer William Gibson famously declared that the future is already here, it's just not very evenly distributed (Wikiquote 2011). Each of the applications and tools mentioned in this paper has been adopted, embraced and enthusiastically championed by many librarians. What is less clear is that this has been done as part of an overarching philosophical redefinition of what libraries should be, who they should serve and how, rather than a well intentioned and enthusiastic attempt to modernize an existing product. The fear must be that most libraries are trying desperately to cling to outmoded notions of what customers really want, and are being ever more inventive and efficient in so doing; for there is another, but much less palatable, future for libraries. The story is often told of the end of the typewriter. In 2000, the President of Smith-Corona, at the closing of the company's very last plant, gathered together the remaining employees and told them that on that day, the company had the highest quality product, with the lowest defect rate, greatest customer satisfaction levels and lowest return rates it had ever produced. And then he told them that they had 'perfected the irrelevant'. Libraries too run that risk. There is a wealth of imagination, innovation and inquisitiveness within the library profession. The real challenge is whether the innovators and early adopters can inspire their colleagues to embrace these developments as central to the future of the profession and not have them seem the ephemeral and transient gewgaws of an eccentric fringe. Perhaps even more importantly this huge turbulence in the flows and management of information provides a huge opportunity for libraries and librarians to return to a central and vibrant role within the institution, not as a sort of comfort blanket showing institutional worth but as a force seen as essential to the enrichment of the student experience by broadening horizons and as a force seen as essential to the research process by both underpinning that research and then assisting in maximizing its public impact.

Libraries in research universities should occupy a central place in the life of their institutions. The research library of tomorrow needs to be tuned to the digital order while cherishing the materiality of the worlds of print and manuscript which most will still possess. It needs a deep understanding of the heterogeneous disciplinary cultures it serves and possibly even some level of involvement in them, of the heterogeneous digital literacies it supports and it must provide a neutral place of scholarship on campus. It is plural, and must provide scholars with knowledge engineering and born digital content, with serendipitous browsing among printed and electronic documents, and with curated physical treasures in a stewarded environment and it must help to broadcast the outputs of the institution. Disciplinary culture and level of scholarship (from undergraduate to senior

researcher) will determine the balance of each of these forms of engagement necessary for each library user. It must understand collecting across all forms of intellectual and cultural expression, and work closely in partnership with other collections on and off campus – archives, museums and galleries – to aggregate and add value. It should embody the universe of knowledge while being faithful to its particular history and the character of its locale, and it should exemplify the academic institution itself – what Anthony Grafton, Henry Putnam University Professor at Princeton University calls "a still centre of slow, patient scholarly work in a dizzily turning world."

Note

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65+: Engaging underserved patrons - a success story!

Jasmina Ninkov and Vesna Vuksan
Belgrade City Library

Abstract
Belgrade City Library (BCL) is the largest public library system in southeastern Europe with 275 employees, covering over 70 locations throughout the City of Belgrade. The idea to conduct research was initially born as a result of BCL's desire to identify groups that are not using the library and determine the reasons. On the other hand, the inspiration came from the City of Belgrade public sector's best practices. At the end of 2009, BCL conducted market research with the following objectives: identify non-user groups; engage the largest underserved group; develop services to meet their needs. Conducting applied research in library environment is a lot of work. Starting with clear goals and a good plan vastly increases the probability that the assessment will go smoothly and yield genuinely useful information. As we have had a chance to see, the accurate information obtained through research leads to enormous benefits. We believe that active communication with our patrons and potential members through different channels including applied research and effective data collection will help build a library network that can, in turn, build a better community.

Keywords
public library services, non-users, underserved user groups, elderly patrons, membership fees, computer literacy courses

Belgrade City Library

Founded in 1929, the Belgrade City Library has gone through many changes throughout history. During World War II, even though the old building and a valuable part of the collection were damaged, the library was open to the public throughout this time. After the war, the library developed by creating new organizational plans, opening new divisions, founding a professional center for libraries in Belgrade and striving to form a unique network of all public libraries in the city.

Today, Belgrade City Library represents the largest public library system in Southeastern Europe with 275 employees, covering over 70 locations throughout the City of Belgrade. Being a parent library for a network of 13 municipal libraries and their branches, BCL has a special responsibility to reach out and change widespread public opinion that defines a library more traditionally – as a collection of books. In the past several years, the BCL has been proactively involved in redefining the role and perception of the libraries and striving to reach out to more and more patrons each year.

Tireless in its efforts, the Belgrade City Library has reached the best results in its history in 2010 by attracting 11.2 percent of the population to the library. In the same year BCL had over 3,500 cultural programs, 2.5 million circulated materials, almost 150,000 patrons, 200,000 reference services, and has introduced numerous new services and communication tools according to patrons' rapidly changing needs (digital library, QuestionPoint, Web 2.0 tools, Internet centers, audio/video collection, etc). While these numbers may be the norm in other countries, they represent a very important step forward for Serbian libraries.

Our mission today is to focus on the ways in which the values of librarianship and the trust the

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community places in our library could reinforce a positive image.

Library environment

There are 2,300 libraries in Serbia, out of which 160 are public. Despite new services and opportunities that the new millennium brought to the libraries, it has been hard to attract new audiences and change the statistics. The average percentage of public library card holders in Serbia is 5–7 percent, which is below minimum standards recommended by IFLA. It is even below local standards recommended by the National Library of Serbia and Serbian Library Association. The reasons for such statistics differ from one library to another, but mostly relate to:

- lack of good governance (directors are often appointed through political parties and not based on their managerial skills)
- unmotivated staff (human resource departments deal more with paperwork than with creating a motivating environment for staff)
- low percentage of new professionals (bad retirement policies and political connections are preventing young librarians to enter the profession)
- fear of change (the 'safe old school' is recognizable in the majority of public libraries).

Over the last few years, BCL has made real progress in enhancing existing users' experiences as well as opening up the library's resources to new audiences. The success we achieved in 2010 was partially based on applied research and effective data collection.

The idea

The idea to conduct research was initially born as a result of BCL's desire to identify groups that are not using the library and determine the reasons. On the other hand, the inspiration came from the City of Belgrade public sector's best practices.

Research methodology and findings

At the end of 2009, BCL conducted market research with the following objectives:

1. identify non-user groups
2. engage the largest underserved group
3. develop services to meet their needs.

To meet the objectives of the research, two combined surveys were conducted using:

1. random sampling
2. focus group methodology.

Identifying non-user groups

BCL management board nominated a team of six librarians to work on the research and report back to the board. They created a survey using random sampling methodology with a task of identifying non-user groups that have not been using the library at all in the past 5 years. The survey lasted 2 weeks, included 420 citizens, and was conducted in several locations in the city including the main pedestrian zone, market, shopping malls, bus stops and two recreation areas in the city. It contained six questions as follows:

1. Have you been a public library member in the past five years?
   a. yes
   b. no
2. If yes, how old are you?
   a. 18–25
   b. 26–40
   c. 41–55
   d. 56–64
   e. over 65
3. If no, why?
   a. high membership fee
   b. poor book collections / services
   c. poor conditions (space, accessibility, . . .)
   d. I am not interested
   e. other _____
4. How old are you?
   a. 18–25
   b. 26–40
   c. 41–55
   d. 56–64
   e. over 65
5. Highest degree you have earned:
   a. primary school
   b. high school
   c. college
6. Do you know if there is a public library located in your neighborhood?
   a. yes
   b. no

Out of 420 participants, 21 percent (89) have been members in the past 5 years, the largest group being students between the age of 18 and 25 (28 percent) and the smallest, citizens over 65 (11 percent).

The remaining 79 percent (331) have not been members due to high membership fee (29 percent), poor collections or services (23 percent), poor conditions (space, accessibility, etc.) (22 percent), not interested (15 percent), and other reasons (11 percent).

Among non-members the citizens over 65 represented the largest group.

When we cross-referenced the results to see which group specified certain reasons, one group was particularly singled out (37 percent), and that was the retired citizens over 65 with college degrees. The reasons for not having a library card were primarily financial. Membership in public libraries in Serbia is not free for most patrons. BCL charges for annual membership from US$5 - US$14, depending on the category, which is 1-3 percent of average monthly income in Serbia, or 2-6 percent of average pension.

Sixty-one percent of non-members had no idea where the nearest public library was.

Our next step was to determine ways to engage the largest underserved group.

Engaging the largest underserved group

Due to the above findings, in April 2010 BCL introduced a new membership category '65+', which allowed this target group to acquire their library cards at no cost and without a need to renew each year. This particular idea was derived from a similar concept that the City of Belgrade introduced to the same target group but in a different field. The public transport system in Belgrade has been successfully offering free lifetime tickets to citizens over 65 since 2007.

From April to December 2010, over 2,300 new '65+' members joined Belgrade City Library. After this initial step, we needed to discover our new patrons' needs in order to develop new services.

Developing services for new patrons

The second survey used focus group methodology and dealt with our new 65+ members. The task was to identify missing services for the 65+ group. This survey was simpler than the first one and contained two questions as follows:

1. Which library services do you mostly use?
   a. I borrow books
   b. I attend cultural events
   c. I use the Internet
2. What would you like to see more of in a library?

This survey showed that out of 138 respondents, 82 mostly borrow books, 53 attend cultural events and only 3 use the Internet. As a follow up, 62 percent of focus group participants stated that they wanted free computer literacy courses. The rest of the answers referred to collection acquisition, suggestions about the cultural programs and language courses.

As a result, BCL initiated a series of computer literacy courses in June 2010 in one central branch within the BCL network. The first course was held by the US Embassy Information Resource Center director, who volunteered to run it for one group. Inspired by initial success, librarian-run courses were launched later on, achieving great success. Instead of having the courses once a week, we had to increase the frequency to five times a week.

In addition to these efforts, we assembled a course evaluation form for 65+ trainees with a few standard fields (content, presentation/instructor and additional comments) and learned that they needed a practical handbook. This led us to publishing a handbook 'IT for Beginners: Practicum for 65+' that was free of charge for each trainee. It covers issues and topics that our patrons learn about at the courses, including 'How to use the mouse?', 'Googling', 'E-mail services', and 'New to Skype'.

The aftermath

We achieved great success as the only public library system in the country to have this type of membership and course offerings. By the end of 2010, the program spread to five more central branches, 2,300 new 65+ members joined, and 340 IT course certificates were awarded.

Our new members now come to the library more often and use online resources for information and correspondence with their friends and family worldwide. Belgrade City Library will build on its success in reaching underserved patrons and will continue the project in future years.

Conducting applied research in library environment is a lot of work. Starting with clear goals and a good plan vastly increases the probability that the assessment will go smoothly and yield genuinely useful information. As we have had a chance to see, the accurate information obtained through research leads to enormous benefits. We believe that active communication with our patrons and potential members through different channels, including applied research and effective data collection, will help build a library network that can, in turn, build a better community.

Note

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Key skills and competencies of a new generation of LIS professionals

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Abstract

This paper presents the key skills and competencies of a new generation of LIS professionals. Firstly, it gives an introductory background of the digital era which impacts on the changes occurring in libraries. Secondly, it presents a review of the literatures on skills and knowledge of LIS professionals working in a digital era and related researches. Thirdly, it describes methodology of this study and key skills and competencies of a new generation of LIS professionals which can be classified as personal skills, generic skills, and discipline-specific knowledge. Finally, it presents the image of the new generation of LIS professionals.

Keywords

new professionals, skills, competencies, personal skills, generic skills, discipline-specific knowledge

Background

Facing technological innovations, for instance digitization, electronic publishing, Web 2.0, Library 2.0, Really Simple Syndication (RSS), Blogs, Wikis, Short Message Service (SMS), Podcasting, Mashups, Tagging, Folksonomies, Open Source Software (OSS), Open Access (OA), etc., libraries worldwide have been adjusting to the shift from the printed era to the digital era. The speed of change has created a new librarian landscape in terms of services and activities. These innovations impact the roles, competencies, skills and knowledge of LIS professionals. As stated in the paper of Erlendsdóttir (1998) "We are no longer just the guardians of books. We are information providers in an environment that is constantly changing and where the information needs to be gathered quickly and effectively. Today, our mission is to promote services for the ever-increasing amount of information. And even if we don't like it, information technology has changed our jobs."

Research problem

Related to the changes within the LIS profession, one of the most interesting issues which LIS professionals have discussed and studied is "What are the skills and competencies required for LIS professionals to be effective and efficient working in the digital era?"

Spink and Cool (1999) studied curricula required to educate information professionals working in a digital library environment, and they stated that "We do not know what knowledge is required to produce information or computer professionals to work as digital librarians, digital developers, or in other job categories, or even what the job designations or requirements will be in the future."

Weech (2005) analyzed courses and modules of education for digital librarianship to find out the knowledge and skills needed of an information professional working in the digital library environment. Weech (2005, p.1) stated, "we do not know much about what skills are needed for professionals who work as digital librarians."

Additionally, the number of interested LIS professionals to work on this area has increased. It can be proved by several studies such as Feret and Marcinek (1999); Goulding et al., (1999); Tennant (1999); Lynch and Smith (2001); Kwasik (2002); Lovato-Grassman (2003); Partridge and Hallam (2004); Myburgh (2005); O'Connor and Li (2008); Orme (2008); Howard (2009) and Nonthacumjane (2010).

Consequently, it is also expected that this issue would be critical considered as a must to study or observe the result.

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The major research question of this study is: What are key skills and competencies of a new generation of LIS professionals?

Literature review

Generally, the professional discussion relates to the competencies, skills and knowledge aspect of what are required by a LIS professionals working in an era of digital information. The main focus of this part is to indicate the core skills and knowledge that are required.

Changing roles and skills of LIS professionals

As information technology (IT) has become part of everyday life, Dolan and Schumacher (1997) emphasized that the influx of the Internet and innovative technologies impacted the LIS professionals that they enable to be qualified in a new variety of technological career. Ashcroft (2004) indicated that the LIS professionals need to change because of the IT trends, thus their roles, characteristics and skills are set to adjust to the changes. Fourie (2004) indicated that IT has impacted on the future of librarians' work activities and responsibilities. She described how librarians are in the cyberspace world and their roles have to be changed according to the new IT developments.

Categories of skills

Skills categories have been classified by some LIS researchers as follows:

Feret and Marcinek (1999) utilized the Delphi method to predict the future role of the academic library and the skills that might be required by the academic librarian in 2005. The findings were divided in the five main categories, namely communication or training skills; IT skills; managerial; commitment; and subject knowledge or profiling. Teamwork skills, public communication skills, project management skills, leadership qualities, knowledge of international standards, commitment to the profession and flexibility were also mentioned as the required skills.

Goulding, Bromham, Hannbuss and Cramer (1999) investigated the personal characteristics necessary for information professionals by conducting a content analysis of job advertisements in order to find a list of the personal characteristics. The questionnaire was sent to chief librarians in the United Kingdom including all library sectors. The results summarized the four most essential qualities skills required namely communication skills, flexibility, the ability to work under pressure, and dealing with a range of users.

Lynch and Smith (2001) conducted a content analysis of 220 job advertisements from American academic libraries. They found that oral and written communication skills were the most important. However, flexibility, creativity and leadership were also appearing more frequently in the advertisements. Computer technologies and related skills were regularly mentioned in the ads.

Kwasik (2002) studied the technological change connecting with serials librarians. She discovered that the traditional skills were the most frequently mentioned as a requirement, followed by communication skills at a second place. Additionally, she indicated that the skills that could be fitted to a digital environment, for instance knowledge of metadata standards, markup languages, experience in cataloguing electronic publications and Web design, etc. were normally rated as 'knowledge' desired for an information professional.

Partridge and Hallam (2004) investigated the comparison of the structure of human DNA to the skills, knowledge and attitudes of the model information professional for the 21st century. They indicated that both discipline knowledge and generic capabilities were needed for a successful information professional in today's information environment. They defined generic capabilities as personal and generic skills. They conducted focus groups in the South East Queensland region of Australia with library and information professionals, educators and students by compiling lists in the areas of generic capabilities and discipline knowledge from the literature. They found out that there was little in-depth discussion on the generic capabilities of the information professionals. Ten generic capabilities including information literacy, lifelong learning, teamwork, communication, ethics and social responsibility, project management, critical thinking, problem solving, business acumen, and self management were considered to be significant in the needed framework of an information professional. The focus groups also identified skills which were not presented in the list, such as IT skills, marketing or promotion and teaching skills. The findings were then presented in a list of 14 items of discipline knowledge, including information and society, ethics and legal responsibility, management, information organization, information services, collection management and development, information resources and retrieval, information literacy instruction, information management, information systems for library and information professionals, web content management, career planning skills, records management and archives, and research. These items were vital to the information professional. The final result of the discussion indicated that the discipline knowledge which was identified covered the essential knowledge. However, political skills, project

management, communication and teamwork were also recommended.

Gerolimas and Konsta (2008) conducted their study of 200 job advertisements by collecting data from the United Kingdom, Canada, Australia and the United States in 2006 and 2007 to investigate the qualifications as the skills required of a modern professional librarian. The findings indicated that communication skills were one of the highest ranked skills followed by experience. Additionally, interpersonal skills also appeared frequently.

O'Connor and Li (2008) analyzed 138 academic librarian position advertisements from Australia, America, United Kingdom, New Zealand and Hong Kong between July and November 2007 in a study that covered the period from 1973 to 1998. The position descriptions were analyzed and classified into four groups as computing and technology; interpersonal and intrapersonal; service approaches; and traditional approaches to libraries. In addition, they found that the skills most frequently presented were communication, leadership and interpersonal skills, independent, innovative, confident, judgement, energetic and enthusiasm.

Orme (2008) conducted a content analysis of 180 job advertisements collected between June 2006 and May 2007 from the library sectors in the United Kingdom. She categorized skills into generic, personal and professional. The findings indicated that generic skills are the most normally required. Professional skills and personal skills are as the second and the third place respectively. The three most regular skills in each category are listed below:

Generic: interpersonal/communication; general computing; teamwork.
Professional: professional related experience; customer service; chartered librarian; cataloging, classification and Metadata.
Personal: enthusiasm; flexibility; self-motivation.

Roles and skills for the digital librarian

Several studies mentioned that the information technology (IT) impacted the information professional's roles, skills and knowledge requirements. Additionally, also IT represents one of the important courses which should be included in the LIS curriculum. (Dolan and Schumacher 1997; Budd and Miller 1999; Bakar 2005, and Khoo 2005). However, a small number of studies stated the roles and skills for an information professional to work in a digital library environment, as summarized in the following sections.

Tennant (1999) presented a list of discipline-specific knowledge which the digital librarian should know and be qualified in. Tennant classified the vital skills needed to create and manage digital library collections and services, namely: imaging technologies, optical character recognition (OCR), markup languages, including, HyperText Markup Language (HTML), Standard Generalized Markup Language (SGML), and Extensible Markup Language (XML), cataloging and metadata, indexing and database technology, user interface design, programming, Web technology and project management.

Sreenivasulu (2000) considered that an essential role of a digital librarian in digital libraries was to play a liaison role to bring together users and information. Additionally, he mentioned that one of the essential skills which the digital librarian needed to develop is the ability to manage digital libraries and digital knowledge in terms of digital knowledge management. However, he did not indicate any list of personal characteristics. Among the specific skills needed for working as a digital information professional were knowledge of Web publishing, imaging technologies, optical character recognition and markup languages.

Myburgh (2005) presented the role of the modern information professional in the changing world, noting that the new information professional's particular skills, attitudes and values included the capacity for problem solving, teamwork, embracing continuous change, lifelong learning, interdisciplinary knowledge, service commitment demonstrate, effective communication and interpersonal skills, flexible, high ethical standards in professional and personal life demonstration, intellectual openness and curiosity posing, critical and conceptual engagement and reflective thinking of intellectual and practical activity contribute to develop their professional competencies.

Choi and Rasmussen (2006) surveyed practitioners in the United States who were involved in digitization or digital library projects from September to December 2005. One purpose of the study was to find out skills and knowledge required for digital librarians. The findings of the study corresponded with many of the studies previously mentioned. Communication skills, project management and leadership skills were also rated highly. The five highest ranked choices for the technical area were: understanding of digital library architecture and software; knowledge of technical and quality standards; Web markup languages; database development and management systems; and Web design skills. The most highly cited were cataloging, electronic collection development/management and systems analysis.

Choi and Rasmussen (2009) studied the essential qualifications and skills of digital library positions

involved in academic libraries. The study was a content analysis of job advertisements collected from the digital library positions posted in *College and Research Libraries News* from 1999 to 2007. The analysis of competence requirements in the ads was based on the American Library Association's (ALA) eight areas of core of librarianship competencies, including professional ethics, resource building, knowledge organization, technological knowledge, knowledge dissemination (service), knowledge accumulation (education and lifelong learning), and knowledge inquiry (research), and institution management. (It has been noted that the ALA published revisions to the competencies in 2009.) The study findings indicated that knowledge and experience with metadata, and the creation and management of digital information, were highly required in the advertisements. Technological knowledge and management were most frequently mentioned as required qualifications. The most required area of technical knowledge related to contextual and trend analysis in the digital library environment, including current trends, practices, standards, technology in digital library practice. HTML coding, general computer skills and computer literacy, knowledge and an understanding of information technology, and markup languages such as SGML and XML, and Web development and design were mentioned as frequently required knowledge and skills. Communication and interpersonal skills were also mentioned as being important. Teamwork skills were also mentioned in more than half of the advertisements.

From an Australian perspective, Howard (2009) studied digital library education. One of the aims of the study was to identify the skills and knowledge required to work in a digital library environment in order to establish what might be included in an LIS curriculum. The target group of the study was practitioners working in academic libraries and LIS educators in Australia. This study used an online questionnaire as a research method. The skills and knowledge applied in the study were classified in three categories as personal skills, generic skills and discipline-specific knowledge. The findings indicated that the personal skills, namely flexibility, able to deal with a range of users, adaptability, reflective, detective-like, and responsive to others' needs were required for working in the digital library environment. The highly desirable generic skills are communication and critical skills/thinking. In addition, user needs and metadata were regarded as highly desirable knowledge areas.

Nonthacumjane (2010) studied the essential competencies of an information professional working in a digital library environment, from the perspectives of Norwegian and Thai LIS educators. The comparative study used online questionnaires, face-to-face interviews, online interviews and email interviews as data collection methods. The findings of this study revealed that the knowledge and skills that underpin the work of information professionals in both countries encompassed analytical, creative and technical competencies. It was found that the principal areas of disciplinary knowledge required included an understanding of metadata, database development, database management systems and user needs. Communication, critical thinking, information literacy and teamwork were found to be the generic skills needed by information professionals in a digital library environment.

As presented in the related studies, most of researches mentioned skills and competencies which can be classified as personal skills, generic skills, and discipline-specific knowledge.

Methodology

This study employed a research method which includes qualitative research approaches. Content analysis methodology was used to review the literature on skills and competencies of LIS professionals working in a digital era. The literature was studied over a 14-year time frame from 1997–2010. The data was collected from analyzing, quantifying, classifying and summarizing the required skills and competencies which were mentioned or described in most of the literature.

A data analysis described the key skills and competencies of a new generation of LIS professionals, classified into three categories, namely personal skills, generic skills, and discipline-specific knowledge.

Key skills and competencies of a new generation of LIS professionals

Personal skills

Personal skills can be defined as appropriate attitudes, values and personal traits (Khoo 2005, p. 6). The personal skills required for a new generation of LIS professionals include being analytical, creative, flexible, reflective, able to deal with a range of users, detective-like, adaptable, responsive to others' needs, enthusiastic and self-motivated. Being analytical and able to use management tools such as PESTLE (Political, Economic, Social, Technological, Legal, Environmental) and SWOT (Strengths, Weaknesses, Opportunities and Threats) are paramount. The fact that technical skills also play a key role in library

Table 1. Definitions/descriptions of personal skills

No.	Personal skills	Description
1	Analytical	Using or skilled in using analysis (i.e. separating a whole – intellectual or substantial – into its elemental parts or basic principles).
2	Creative	Having the ability or power to create.
3	Technical	Of or relating to technique or proficiency in a practical skill, for instance acquisition, classification, cataloging, management, services, etc.
4	Flexible	Capable of being changed; elastic: able to adjust readily to different conditions.
5	Reflective	Be devoted to matters of the mind; 'the reflective type'.
6	Able to deal with a range of users	Eligible to provide or give the information and services to the variety of user groups' desired or needed.
7	Detective-like	Able to solve a mystery, generally through a process of discovery.
8	Adaptable	Capable of adapting (of becoming or being made suitable) to a particular situation or use.
9	Responsive to others' needs	Answering, replying or responding; able to receive and respond to external stimuli. Susceptible to the feelings of others.
10	Enthusiastic	Having or showing great excitement and interest.
11	Self-motivated	Be motivated to achieve something due to one's own interest.

Source: Wiktionary (2011), WordNet (2011).

work should not be overlooked. The descriptions of the personal skills that are central to contemporary library work are presented in Table 1.

These personal skills are widely discussed in the professional literature (Feret and Marcinek, 1999; Goulding et al., 1999; Lynch and Smith, 2001; Kwasik, 2002; Lovato-Grassman, 2003; Partridge and Hallam, 2004; Myburgh, 2005; O'Connor and Li, 2008; Orme, 2008; Howard, 2009; Nonthacumjane, 2010).

Generic skills

Generic skills can be defined as the general skills which cut through disciplines, for example communication, critical thinking, information literacy, teamwork, etc. (Khoo 2005, p. 6). The generic skills that have been identified as being critical for LIS professionals are as follows: information literacy, communication, critical thinking, teamwork, ethics and social responsibility, problem solving and leadership. In today's digital environment, it is important to note that a LIS professional serves many roles: a helpful facilitator in searching and evaluating required information; an effective communicator with commands in speaking, writing and presentation; a critical thinker updating the fast pace of digital era; a collaborative practitioner in problem solving with strong leadership qualities. The generic skills are explained in Table 2.

Discipline-specific knowledge

Discipline-specific knowledge can be defined as knowledge which is learned in the LIS programmes in both undergraduate and postgraduate levels, for instance collections development, digital library architecture, digital library software, metadata, etc. (Choi and Rasmussen 2006; Howard 2009)

The discipline-specific knowledge which is required for the new LIS professionals includes metadata, database development and database management system, user needs, digital archiving and preservation, collection development, and content management systems. Metadata, which is a core theme of LIS work, enables LIS professionals to create linking of accessible data. To work successfully in the digital library environment, the new generation of LIS professionals should have a basic knowledge of database development and database management systems, which is also noted as one of the most essential required items of knowledge. The organizational issues are all connected to database knowledge, such as Functional Requirements for Bibliographic Records (FRBR) which is based on database design, the Semantic Web, Resource Description Framework (RDF) and the Simple Protocol and RDF Query Language (SPARQL), and related principles and technologies.

The area of user needs is identified as essential knowledge that an information professional should have. In the digital library, the main task is arguably similar to the traditional one, i.e. to provide access to information and knowledge services to users. User needs represent the highlighted topic that an information professional should understand in depth. LIS professionals need to be able to identify who are the target groups or users of the library, for instance as the digital natives or the digital immigrants, etc. They

Table 2. Definitions/descriptions of generic skills

No.	Generic skills	Description
1	Information literacy	A means 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." (Horton and UNESCO 2008, p.18) In this LIS context, "IL can be defined as ability to recognize when information is needed and being able to locate, evaluate and use effectively the needed information." (Partridge and Hallam, 2004, p.7)
2	Communication	"the ability to exchange feelings, ideas and information with others in an appropriate manner. Communication consists of the two key aspects of oral and written skills. Oral communication involves using the human voice to effectively articulate a message to an intended audience. Written communication involves using text or graphics to effectively transmit a message to an intended audience." (Partridge and Hallam, 2004, p.7)
3	Critical thinking	"the ability to reach conclusions through reflection and evaluation by applying independent thought and informed judgement." (Partridge and Hallam, 2004, p.7)
4	Teamwork	"the ability to work effectively with others in a group with the view to achieving defined goals. Two distinct roles necessary for teamwork are the team member and the team leader. A team member makes a productive contribution to the collaborative effort of the group by participating in the pursuit of group goals under the guidance of the team leader. The team leader makes a productive contribution to the collaborative efforts of the group by providing guidance to ensure desired goals are met." (Partridge and Hallam, 2004, p.7)
5	Ethics and social responsibility	"an awareness of the need for and commitment to the maintenance of high professional standards and social justice." (Partridge and Hallam, 2004, p.7)
6	Problem solving	"the ability to find effective solutions to problems through creative reasoning."(Partridge and Hallam, 2004, p.7)
7	Leadership	*"a relationship that involves the mobilizing, influencing, and guiding of others toward desired goals."* (Wolinski, 2010)

Notes: These generic skills are discussed in the professional literature (Feret and Marcinek, 1999; Goulding et al., 1999; Lynch and Smith, 2001; Kwasik, 2002; Lovato-Grassman, 2003; Fisher, 2004; Partridge and Hallam, 2004; Myburgh, 2005; Choi and Rasmussen, 2006, 2009; Gerolimas and Konsta, 2008; O'Connor and Li, 2008; Orme, 2008; Howard, 2009; Nonthacumjane, 2010).

Table 3. Discipline-specific knowledge required by a new generation of LIS professionals

Discipline-specific knowledge	Tennant (1999)	Kwasik (2002)	Lovato-Grassman (2003)	Partridge and Hallam (2004)	Choi and Rasmussen (2006, 2009)	Howard (2009)	Nonthacumjane (2010)
1. Metadata	✓	✓	✓	✓	✓	✓	✓
2. Database development and DBMS	✓	✓	✓	✓	✓	✓	✓
3. User needs	✓	✓	✓	✓	✓	✓	✓
4. Digital archiving and preservation	✓	✓	✓	✓	✓	✓	✓
5. Collection development	✓	✓	✓	✓	✓	✓	✓
6. Content management system	✓	✓	✓	✓	✓	✓	✓

have to find out or do research on what the user demand might be in order to answer questions like:

What kinds of services do users really need?
Does the collection meet their needs?
Are they satisfied with the collections or services provided?

In reviewing the literature it was found that there was general consensus about the spectrum of discipline-specific knowledge required by LIS professionals working in the digital library environment (Table 3).

Conclusion

The findings of the study provide a complete picture of an archetypal set of skills and competencies which build the image of a new generation of LIS professionals. Due to digitization of the knowledge-based society, libraries are faced with many kinds of changes with regard to technological aspects, user and learning behaviors, and social aspects. All have major impacts on the roles, competencies, skills and knowledge of LIS professionals.

While technical competencies will continue to underpin professional practice, this paper has identified the wide range of personal attributes required, encompassing technical and analytical skills, interpersonal qualities and critical reflective practice. The dynamic working environment requires the new generation of LIS professionals to be flexible and creative when dealing with the changes in collections, services, and users. Critical thinking, ethical understanding, social responsibility and problem solving skills are vital for the future.

In this digital era, the representative of a new generation of LIS professionals should possess generic skills that enable him/her to act as facilitators or mentors to help the user to find and evaluate the information they need. Communication is important to working efficiently in all media, with oral, written and presentation skills all required to maintain contact between the library staff themselves and with their users. The expectation that library professionals will work in multidisciplinary contexts which might encompass areas such as computer science, information science and journalism means that teamwork is one of the key skills for practitioners. The ability to work collaboratively as both team leader and team member will ensure that working groups can fulfill projects successfully and contribute to the achievement of the goals of the library.

Discipline-specific knowledge was studied in order to determine the main areas of professional work in digital libraries. As digitization activities continue to impact on library collections, collection development, content management, digital archiving and preservation represent areas of knowledge in which the new generation LIS professionals should be qualified. Metadata, as well as database development and management, were found to be essential discipline-specific knowledge. LIS professionals need to know how to manage digital content to ensure users can effectively access, retrieve and share information.

In conclusion, to work efficiently and effectively in the fast-changing digital age, a new generation of LIS professionals should have the qualifications in providing information as well as dynamically exercising personal skills, generic skills and discipline-specific knowledge.

Notes

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Finding film resources: Challenges of formats, policies and intranets

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Abstract
As interdisciplinary cultural studies programs become increasingly prevalent in North America, many humanities-trained scholars find themselves drawn to study film from a similar perspective. Finding source materials such as copies of canon films and appropriate scholarly resources is complicated by library lending policies that do not extend to media items, or foreign films with formats different from those collected by one's institution. This article examines such problematic issues for patrons looking for films and includes personal experiences at several research institutions in both Los Angeles and Paris, with advice and insight for the potential researcher writing about film for academic purposes.

Keywords
film studies, media studies, film formats, film libraries, film finding aids, media lending policies, Canada, France, USA

Introduction

In an effort to make their programs more attractive to undergraduates on a globalized campus, language and literature departments are increasingly turning to area and cultural studies approaches. The Internet enhances the classroom experience with audio and video clips of media sources such as music, both contemporary and vintage, as well as broadcast news and advertising previously unavailable without waiting for special, and often expensive, video releases from educational media companies. Advances in technology, including DVDs and DVD players, have made the integration of popular culture into language and literature classes more affordable, and have opened the door to a new canon of texts for scholars previously limited by the publishing conventions of language and literature. Film studies, in the context of area and cultural studies, offer a new avenue for the classical humanities perspective, particularly welcome to scholars trying to find something new to say in a crowded publishing field. Finding appropriate resources to support this new direction, starting with a copy of the film itself, can be challenging even to a seasoned library user.

Film studies offer an interdisciplinary approach that can complement almost any area of study, particularly in the humanities. While the production elements of film are frequently considered, more often than not the same theories of literary studies are applied to the study of a film title, including psychoanalysis, gender theory, anthropology, semiotics and linguistics. The film is considered a text or cultural touchstone, in the same vein as a novel, poem, or song. In terms of research, a scholarly article on a film title may focus on the representation of gender roles in the works of a particular actor or director, or on filmmaking techniques such as the use of a certain camera lens. Lighting, camera work, and sound, can be as significant as the actual narrative of the film. The field is rich for publication from many perspectives, but finding needed resources to study these films is not so obvious, as literary resources and library policies do not necessarily accommodate this new field of study. The primary text, being the film itself, is subject to available formats that differ from country to country. Archival materials, like those for literary studies, can be difficult to locate. Secondary materials, such as filmmaker interviews and film reviews, are subject to indexing in databases. The researcher may have

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to combine high culture and low culture sources (a variation on the sacred and the profane) to flesh out an academic study. Though academic libraries have become increasingly user-friendly with open stacks, soft furniture, and laptop checkout, the policies for media access have not evolved in all libraries, thus making film research especially challenging.

Literature review

Library literature has primarily focused on the management of a film collection and the policies that dictate a collection's use, but until recently, there has been little consideration of patron needs and whether they are being met.

Brancolini and Teach (1994) address the issue of maintaining a film collection in the age just before the DVD revolution. Their focus is on 'film video', but raises excellent points on issues in technical services, public services, facilities management, and budgeting. They correctly maintain that "liking movies" is "not adequate preparation for the position of media librarian." The media curator needs to have an understanding of how audiovisual materials are being used at the institution, often for both recreational and academic purposes. Carr (2002) examines the "precarious situation in which the library's role as a facility of education and research becomes entangled with commercial interests and sensibilities" as the academic library juggles requests for popular titles with collection development policies to support curriculum and instruction. He cites a lack of professional standards in this type of collecting, and acknowledges challenges in the field such as "preserving videos and DVDs, budgeting, determining the best format in which to acquire films, complying with copyright laws, and combating pressures to censor materials." He also raises the question frequently posed anecdotally: if films are readily available from the few remaining local video stores, and online subscription agents such as Netflix, does the academic library need to actively collect them? Handman (2010) considers streaming options and video-on-demand (VOD) in terms of academic licensing. There is hope that streaming media formats will help to solve issues of shelf space, and the loss-theft-damage of physical items, but the licensing for potentially thousands of simultaneous users remains problematic, and indicates that this issue will not be solved in the near future.

Low's philosophical article (2002) applies the phenomenologist theories of Maurice Merleau-Ponty to address what he calls the "moral conflict of the film librarian," who must "maintain a balance of *perspectives*, especially a balance of the theoretical, political, aesthetic, high culture with pop culture, etc." with the goals (and policies) of the institution, and suggests deferring to "the national film archives to select and collect high quality material." In many academic libraries, however, it is the curriculum and research of the home faculty that drive many collection decisions, and not because items are on a national list of "must have" titles.

Using data collected from regional and listserv surveys, Bergman (2010) discusses trends in policies and procedures regarding video collections in academic libraries. She cites the "historical model," where collections were built based on faculty requests, student access was limited, and stacks were closed. Though the circulation model for print resources has moved toward one of open stacks and accessibility, in many libraries the video collection remains a "limited access special collection" where interlibrary loan (ILL) is not considered, though ALA's *Guidelines for media resources in academic libraries* (2006) encourages resource sharing, including media items. Bergman suggests reevaluating media collections policies and cites survey data from Albitz and Bolger (2000), who comment that "despite a long history of sharing resources to advance scholarship and teaching, many libraries have yet to fully embrace the idea that information is information, whatever form it takes." This prevailing attitude can be especially frustrating for researchers of foreign films that are not archival materials, yet not readily available in all markets.

Marcia Jean Pankake considers how film is being used for academic purposes (1993), and includes findings from a special program at ALA Annual in 1992, sponsored by the Western European Studies Section (WESS) of ACRL. She asks several key questions, "As librarians . . . what do we mostly bookish people have to do with film? What are teachers, scholars, and students doing with film today? How can we better support the study and teaching of film?" Almost 20 years later, many of these same issues are still relevant, as technologies continue to develop and patron expectations change. By including papers from the program – Steve Hanson on effect of American movies on film production in Europe; Anne Schlosser on resources that support the production and study of film; James Winchell on French film and gender, and Nancy Goldman on the organization and management of film libraries and archives – Pankake illustrates the diversity of the film medium for a variety of scholarly interests within academia. While none of these essays specifically outlines the difficulties in procuring copies of films for more than just entertainment purposes, it is highly likely that unless the patron lives in a

major metropolitan area with multiple resources, he or she has encountered difficulty in finding copies of films with limited theatrical release and/or distribution. This is especially problematic for those who analyze independent, foreign, or "art" films in the areas "between the coasts" where limited releases do not screen at the local multiplex. Film scholars look to find copies of the films reviewed in the *New Yorker* or the *New York Times*, whether restored prints of classic films or newly released "future" classics, and expect the libraries of their academic institutions to help them locate these copies.

Looking for films and resources

American academic libraries in the 21st century are committed to serving the patron's needs in the most expeditious way possible through the acquisition and management of both print and electronic resources. If the item is not in the collection of the patron's home institution, the interlibrary loan department finds a peer institution that owns, and hopefully will lend, the needed materials. When researching a film, however, the situation becomes complicated, as few institutions circulate their media collections to their own patrons, much less allow for interlibrary loan. Though VHS and DVDs are certainly easier to circulate than vintage 16mm prints, they are still fragile, are prone to theft, and can go out of print. Patrons requesting films from other continents, with foreign formats that may not be compatible with local players, add an extra wrinkle to an already difficult search. According to the *OCLC Policies Directory*, there are 3768 active OCLC libraries with an "academic" classification in the United States. Of these, 36 percent (1340) "auto deflect" media titles, meaning they do not even consider the loan requests. In a regional survey conducted by Albitz and Bolger (2000), more than half (67 percent) of respondents were willing to request video titles for their patrons, less than half were willing to lend their holdings, and many had additional restrictions based on patron status. For example, a library may lend a title, but will require that the patron watch it in the ILL department, which may not be equipped with a viewing station. Those who do not lend video titles, according to Albitz and Bolger's survey, cite compelling reasons: tapes and discs are more fragile than books and can be damaged in transit or by an inattentive patron, the high cost of "educational" titles (as opposed to popular titles) makes it difficult to replace a lost or damaged item, as the items go out of print easily. But these concerns can also be applied to print titles: they can be damaged, and they can go out of print. If the item cannot be purchased, either because it is out of print or does not fit the collection development policy of the home institution, and cannot be loaned, the researcher must consider going to the source, in this case, the holding library, if research funds allow. Researchers should be prepared for policies to be different from those at their home institutions. With only 330 periodicals indexed, databases such as the *Film and Television Literature Index* can be hard to justify for institutions without film and television production departments. The Modern Language Association's international bibliography, a more standard database in many academic libraries, includes some film criticism, but does not completely overlap the coverage of *Film and Television Literature Index*. Patrons searching for particular film-related resources may be tempted to head to the holding library, perhaps between semesters or during their research travel, but they should be reminded that holdings and policies at other institutions can be varied, all affecting the research experience.

Film research experiences in Los Angeles

If studying the American film industry, it would make sense to go to the heart of the American film industry: Los Angeles, California. But knowing where to go in Los Angeles is not necessarily obvious, and the city offers multiple and varied resources, each with its own policies. Known worldwide for its annual Oscar awards, the Academy of Motion Picture Arts and Sciences offers extensive resources for the study of film, including the Margaret Herrick Library (MHL) and the Academy Archive. The MHL, beautifully landscaped and easily visible on La Cienega Boulevard in Beverly Hills, is intended for frequent visitors. A reading room is located upstairs, accessible after signing in with a security guard for a day pass, and leaving most of one's belongings in the locker area. Though it is a library, the rules are more like that of an archive: patrons may not make their own photocopies, and notebooks with pockets are not permitted. It is easy to underestimate what is available on site, since the online catalog does not include everything in the inhouse database. If studying American film, the MHL is an exceptional facility, but there is not a space for screening the films themselves. The MHL, as documented both by W.L. Reuter (1993) and Linda Mehr (2007), has reference works and a photo database, production files, biography files, and general subject files, but its most notable asset is the screenplay archive. Scholars who want to see how a screenplay might have changed during production will want to consult this collection. Since it is

essentially a collection of unpublished manuscripts, however, photocopying is not permitted.

The Academy Archive, on the other hand, is not intended to accommodate large numbers of researchers at once. With minimal signage, it looks like any other office building on a side street in Hollywood. It is a great resource for someone writing about the preservation of film, or for someone looking for an otherwise unavailable copy of a film nominated for an Academy Award in any given year. The offices of the Association of Moving Image Archivists (AMIA) are located here, and there are occasional programs for the public. Films must be requested in advance, and in some cases, a screening copy must be made to accommodate a visit. Interested patrons must work from a list of Academy Award nominees on sites such as Oscars.org, since the archive does not have its own publicly-searchable database. Films must be watched onsite, but the space is a classroom with a large television, and is not designed for multiple visitors. The catalog is essentially a list of award winners, but they are also collecting in other areas, such as home movies and documentaries. The most impressive feature at the Academy Archive is not even visible to the average visitor: the cold storage warehouse, which houses thousands of reels of film at 40 degrees Fahrenheit to preserve it from further deterioration. Visiting patrons would be given viewing copies only.

Located on a small campus in the Hollywood Hills, the American Film Institute (AFI) is best known for its annual 100-lists, such as '100 Heroes and Villains,' for its workshops for up and coming filmmakers, and for their prestigious film festival in the fall. The collection of the Louis B. Mayer Library of the AFI exists to meet the needs of filmmakers, rather than film scholars. The Mayer Library answers questions about technical matters, and holds transcripts of AFI seminars and oral histories. A non-AFI fellow would not know of the existence of such seminars, much less these transcripts. The library has a small collection, but does not have an area for screening films, as those are in the AFI itself. According to the library's staff, the most common question they receive is, "I was in an episode of [title] in [year]; can you help me find a copy of it?" Like the MHL, the Mayer Library has a script archive, though it is less comprehensive. If researching a particular filmmaker, like Martin Scorsese, Fritz Lang, or Sergei Eisenstein, the AFI's archives are a great resource. But the AFI's library collection is not intended for extended use by non-fellows, and the library's holdings are not available to the public to search.

The University of Southern California (USC), in the heart of Los Angeles, is known for its School of Cinematic Arts, with notable alumni ranging from George Lucas and Robert Zemeckis to Judd Apatow and Jason Reitman. USC's Cinematic Arts Library is a departmental library with open stacks on the basement floor of the Doheny Memorial Library. The service desk is for the Louis B. Mayer Film and Television Study Center, a collection with limited circulation, and the David L. Wolper Center for the Study of the Documentary, an archival collection. There are two terminals with catalog access, including the database *Film and Television Literature Index*. Otherwise, patrons must rely on wireless Internet access. The A/V screening area is in sight of the circulation desk, which maintains the collection behind the desk. Films may be checked out by faculty for classroom screenings or placed on reserve, but may not be checked out by students, and therefore not loaned to other institutions.

On the Westwood campus of the University of California, Los Angeles (UCLA), the film collection is an archive, much like the Academy's archive. In terms of size, it is second in the United States to the Library of Congress, and much of its collection is stored offsite. The staff is small, and shares a service desk with another department. Items must be requested in advance, and are placed in the A/V department upstairs. Patrons are directed to an individualized workstation which corresponds with a grid at the front desk; only library employees are allowed touch the items. Behind the front desk are decks in various formats, such as VHS, Beta, DVD, Laser Disc, but the researcher's individual station only has access to the buttons for play, stop, rewind, and fast-forward, some of which have rubbed off from repetitive use. The UCLA collection includes extensive television and newsreel archives, including television commercials, in addition to film collections from organizations and high profile individuals in the film and television industry. Materials are not loaned to other libraries, nor are they allowed to leave the building, or department. Advanced notice is required in order to bring materials from offsite storage.

Film research experiences in Paris

If studying European films, it makes sense to go to Europe, and if studying French film, one would logically go to Paris. But European libraries can be rather different from their American counterparts. Like in many European countries, access to scholarly research in France is a more formalized process. A researcher must be prepared to present himself to library staff with appropriate credentials before having access to the collections. Scholars will need documentation of their position as a scholar, in addition

to documentation to explain what resources are needed for the project at hand. The researcher will also need to justify why this particular institution, as opposed to somewhere else, is the best place to conduct the project. The process can be intimidating, especially since French librarians have been known (to me) to point out the flaws in a research project to the user, but should not be daunting. The concept of "user friendly" services is more American than European; in Europe, the integrity of the collection is more important than sparing the researcher's (my) feelings.

The Bibliothèque du Film (BiFi), just by nature of its name, is a logical place to start. Located on the upper floors of the Cinémathèque de France in the 12th *arrondissement*, it is the "foremost European library devoted exclusively to documenting world cinema from its origins to present day" (Rossignol 2009). Patrons must present themselves at the *acceuil* and, after a brief interview and webcam photo, a library identification card is issued. Items must be left in a locker (*vestiaire*), and no bags are permitted in the library past the security gate. Any variety of pens, laptops, and notebooks are allowed, but no bag to put them in. Print materials, including bound journal volumes, are available for consultation, but there are no online versions of any seminal journal titles, including *Cahiers du Cinéma*. Though there is wireless access, there are fewer than five public stations with access to the BiFi's intranet. The intranet includes press dossiers in TIFF format, but these files cannot be saved to a disk storage device, and are not searchable by keyword. They are associated with film titles, and with the names of actors and directors, but not cross referenced. They can be printed at a cost of EUR 0,30 (about US$ 0.40) per page, but those copies are watermarked as a reproduction. To watch a film, the BiFi ID card must be presented with a second form of ID in order to watch the film on site, right in front of the desk. The reading room is an attractive space, but is less than comfortable for extended sessions. The Internet is only available wirelessly, making any simultaneous research using sources such as the *Internet Movie Database* (http://www.imdb.com) difficult to impossible, even while consulting the electronic press dossiers. The archival collections, however, are impressive: an extensive photograph collection, production archives, distribution archives, and collections of correspondence.

The Bibliothèque Nationale de France François Mitterand (BNF) site on the Rue de Tolbiac in the 14th *arrondissement*, which opened in 1997, has a media room (*Salle Médiathèque*) located in Salle P downstairs. Nicknamed the "TGB" for "très grande bibliothèque" (very large library, a play on words for the high speed train TGV, *train à grande vitesse*), researching at the BNF-Tolbiac is exceedingly imposing, and finding Salle P requires going through a set of massive doors, a turnstile, and down a long escalator. Also located in Salle P is the Institut national de l'audiovisuel (INA, or Inathèque), which archives television and radio recordings, but despite sharing a service desk, use of each collection requires a separate appointment. Like all of the collections at the BNF, anyone researching film in Salle P will need to consult with representatives of both the INA and the BNF itself. The BNF accreditation process can be especially intimidating as, like at the BiFi, an interview is required for each section of the library that a patron will be using, represented by a different staff member, even when these sections are in the same room.

A patron must make an advance appointment to use the BNF's media collection so that the requested materials can be uploaded to the assigned workstation. It is the same concept as the UCLA collection, except that here the formats are loaded onto a computer. This is especially useful for watching "DVD extras" that might be unique to the European release of a film. The BNF's Gallica catalog interface is searchable in Salle P, but Internet access is only available via wireless connection.

The television and radio recordings offered by the Inathèque are invaluable for anyone looking for filmmaker interviews to supplement the film reviews and interviews found in newspapers and magazines. The Inathèque was examined by both Amblard and Amit in a special issue (2002) of *Bulletin des bibliothèques de France*. The database onsite is much more extensive than what is online, and it requires training from staff before using, as it uses a Mac-based platform only. Patrons use the database and interpret its color-coding to request items to be pulled from the closed stacks that have not already been digitized. Extra training may be necessary depending on the format of the items. This can be frustrating for a user; in my case, the INA had more material than I could have imagined on the director I was researching. Had I been able to know this in advance, from looking at their online catalog, I would have rescheduled my research visit, spending more time in Salle P than at the BiFi.

The archives of the Centre National du Cinéma et de l'image animée (formerly the Centre National de Cinématographie) also have an office in Salle P but they are separate from the BNF/INA service desk. Much of the CNC's archive is housed off site, but their intranet collection is searchable in Salle P only. Therefore a patron must come into the library to see if something relevant to his/her research exists, but then

come back on another day after the item has been retrieved, if it is not available electronically. Like many other libraries with intranets, they have not migrated their records to a publicly-searchable accessible database. Depending on the initial software used for an institution's intranet, proprietary issues may complicate the transfer of data from what is essentially an accession list to something more universal, like an online catalog. Funding and manpower issues frequently limit the upgrade of information to a public setting, much to the frustration of traveling researchers who make plans and write grants based on what they can see from their home institutions.

Comparison

The libraries visited have several things in common despite the differences in their collections. None is set up to accommodate a user wanting to stay for more than a leisurely search, which can be considered problematic when consulting collections that cannot be loaned out. At the BiFi in Paris, the post-modern aluminum chairs are not designed for long-term ergonomic seating, yet are used in both the reading room and at the viewing stations. At UCLA, the viewing stations do not come with much desk space for writing or using a laptop. The Academy archive is not equipped for scholarly visits, yet the Herrick Library does not have viewing stations at all. Closer to an ideal workstation is at the Cinerobothèque in Montreal, with a second location in Toronto, where the holdings are limited to productions of the National Film Board of Canada. The Cinerobothèque offers 21 viewing stations, each featuring a variation of a dentist's chair, with speakers surrounding the headpiece, and a touchscreen monitor within reach. Their collection includes over 10,000 Canadian films. Also common to several institutions – the Inathèque and the CNC in Paris, and both UCLA and the Herrick Library in Los Angeles – is that there is more in the collection than is searchable in the library's online catalog, primarily due to the use of intranets which cannot be shared outside of their local networks. For the traveling researcher, the absence of accurate data can lead to poor planning, especially disappointing when not enough time has been allocated on the itinerary for a particular institution. Ultimately, I was grateful to find any crumbs of information in each of the libraries I consulted, which was more than I had been able to find from my home institution.

Conclusion

Locating a useable copy of a specific title will always be the biggest challenge for patrons studying film for academic purposes. Unlike digital or and photocopies that can be made for books and journals, format and copyright issues prevent making digital copies of video content, and holding library policy may prohibit interlibrary lending because formats can be fragile and often go out of print. Until all films are available as streaming media, and even that may be problematic, it may be necessary for a patron to consider visiting other libraries when his/her home institution cannot acquire a copy of the film itself. Foreign films present particular challenges because not all films released in other countries are released in the United States in a compatible format. Using French film as an example, though comedy films are typically more successful at the box office in France than dramas, few French comedies are released in the United States on Region 1 DVD. Finding popular press for film can also be challenging, as it is not indexed by most databases, except for major newspapers found in LexisNexis. Attempting to contact a librarian off site may or may not be effective, as it may be difficult to determine who does what just from an institutional website, but a local employee might be able to tell the patron if there is more to be found onsite, for example, in an intranet, than what is in the online catalog. My own research trips in both Los Angeles libraries and in Paris would have been scheduled differently had I been able to access the institution's intranet catalog in advance of my visit, as the library holdings of several institutions were greater than I had anticipated. Maintaining a library's film collection requires more than just selecting titles and replacing damaged copies. When making library policies, it is necessary to consider how the collection will be used, not only at the local level, but by the cooperative community.

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Methodologies for multilingual information integration in the domain of Chinese art

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Abstract

In this paper, we report on methodologies through the two multilingualized research projects. We discuss a proposed methodological framework for Chinese-English interoperability between the respective thesauri, including four main modules: Translation, Mapping, Localization, and Creation. We also discuss four steps involved in building English metadata: Mapping, Selection, Translation, and Control Vocabulary. In addition, the paper also looks into key issues faced by the two projects, including the varying degrees of semantic equivalence between Chinese and English terms, metadata translation, and metadata quality.

Keywords

multilingualism, Chinese-English interoperability, thesauri, metadata, translation

Introduction

Since the launch of the Digital Library Initiative (DLI) projects by the National Science Foundation (NSF) in the USA in 1994, the focus on multilingualization has been one of the most important issues of digital library research. (Borgman 1997; Fox and Marchionini 1998; Oard and Diekema 1998; Zeng, and Chan 2004; Clough, and Eleta 2010) In this paper we propose methodological frameworks of multilinguality in the context of digital libraries, through two multilingualized research projects participated in by Academia Sinica and Taiwan e-Learning and Digital Archives Program (TELDAP), for allowing Chinese-based digital collections of Chinese fine art to become more accessible to users of different languages. The TELDAP is aimed to sustainably maintain important cultural assets of Taiwan and to promote e-learning applications in industry, academic research, and education. Since its initiation, TELDAP has successfully accumulated more than 3 million digitized items. It has been a big challenge to overcome the language barrier and share its abundant collections with the world. First, the paper presents the collaborative project with the Getty Research Institute (GRI) in the US – a Chinese version of *Art and Architecture Thesaurus* (AAT) – as an example, showing that on the basis of the existing multilingual thesaurus, the Chinese translation of 35,000 English terms and the link with digital images allows all English, Spanish and Dutch users and parts of French and Italian users to use their local languages to access Chinese art collections. Secondly, the paper takes another example – our collaborative project with the ARTstor Digital Archive Collection of the Andrew W. Mellon Foundation – to analyze how to build English metadata for the Chinese-based digital collections.

Methodological framework for multilinguality

TELDAP provides multilingual service for digital collections through three approaches. The first approach is to collaborate with the Getty Research Institute on the Chinese AAT project, linking the multilingual terms in AAT with the metadata of 3 million digital collections in the TELDAP Union Catalog to facilitate

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the multilingual indexing and browsing of item-level metadata. The second is the pilot collaboration project with ARTStor, which selects 500 digital collections and translates the item-level metadata into English. The third approach is to develop the portal (http://culture.teldap.tw/culture/) multilingually (including English and Spanish at present) in addition to the local language (Chinese), and to provide multilingual collection-level metadata. (Chen and Chen 2008) The article will look into the methodological framework of the first and second approach.

The TELDAP and Getty Research Institute Collaboration Project (AAT-Taiwan)

The collaboration between the TELDAP and GRI was first initiated in late 2008 to build the Chinese version of the *Art and Architecture Thesaurus* (AAT). The Getty began building the thesaurus back in the late 1970s; since then the AAT has accumulated around 131,000 terms and 34,000 concepts (Harpring 2009). The AAT-Taiwan is a hierarchical database. In addition to the hierarchical relationships, it also has equivalence and associative relationships, making it a thesaurus in compliance with ISO standards. By incorporating Chinese concepts of art, architecture, installations, material culture, and materials into the AAT-Taiwan, it is able to provide catalogers, researchers and the general public in Chinese-speaking societies worldwide with a well-developed and authoritative information database.

Before developing procedures of multilingual thesaurus, one may face practical issues in terms of translating source vocabulary (SV) into target vocabulary (TV), raising questions such as: 'Should we translate only preferred terms of SV?' 'If yes, then should all or partial vocabularies be translated?' 'What kind of methods should we use?' 'What kind of qualifications or backgrounds are we looking for in translators?' 'Are we using any principles to do such mapping/linking?' 'If we find synonyms in TV, what rule should we follow to decide upon one as a descriptor?'

TELDAP and GRI had four Multilingual Vocabulary Project Workshops from 2008 to 2010. During these workshops all the issues related to multilingual vocabularies were fully explored and discussed. Selected topics included "Issues and Challenges in Multilingual Equivalency Work: Lessons Learned on the Spanish AAT Translation Project", and "Bilingual Equivalence Mapping Methods and Issues". A methodological framework has been developed especially for the Chinese version of AAT as shown in Figure 1, with four modules, which are Translation, Mapping, Localization and Creation.

Translation. From the management perspective we focus on three things to ensure maximum results from the translation team: recruitment, training and quality management. The translation team members, including translators and proofreaders, are recruited from various fields: 46 percent of the translators major in Translation Studies, followed by 31 percent in Foreign Languages and Literature, and only 15 percent with an Art and Architecture background. The proofreaders tend to come from different fields, however, with 43 percent majoring in Art and Architecture fields, 29 percent in Foreign Languages and Literature, and only 14 percent in Translation Studies. The first step of training involves unifying terms and file formats, to ensure that the entire process runs smoothly. There are several documents that we provide to the translator for their weekly translation. For example, the Chinese-English glossary provides the translator with a standard as how to translate guide terms and common words. We have also set up an online translation forum to answer translators' questions, and post solutions that can help improve their translation skills. In this way, the translators can learn from each other's mistakes or problems, and the team can spend less time answering the same question twice. The following shows selected procedures for the translations:

T1-R: Recruit professional translators, maintain a minimum of 10 translators at all times.
T3-U2: Establish a set of formats for the reference list, translation sheet and word-count sheet for the translators to follow.
T3-QC2: Examine the fluency and accuracy of the translations of scope notes. The most frequently encountered types of problem include Chinese sentences that are redundant or awkward, misunderstandings of the English text, parts of the scope note that are not translated, and terms representing western concepts being mistaken for incompatible terms in the oriental concept.
T3-R2: Train proofreaders and test their abilities before employing them.

Mapping. Three sources are used for identifying Chinese terms. Terms may be taken from the controlled vocabularies of institutes or organizations, selected by experts from authoritative references, or may be high-frequency words from the TEDLAP Union Catalogue. The equivalence mapping team consults authoritative references to identify English terms, then locates the term in AAT. There are five most commonly identified types of equivalence between SV and TV, including exact equivalence, inexact equivalence, partial equivalence, single to multiple equivalence,

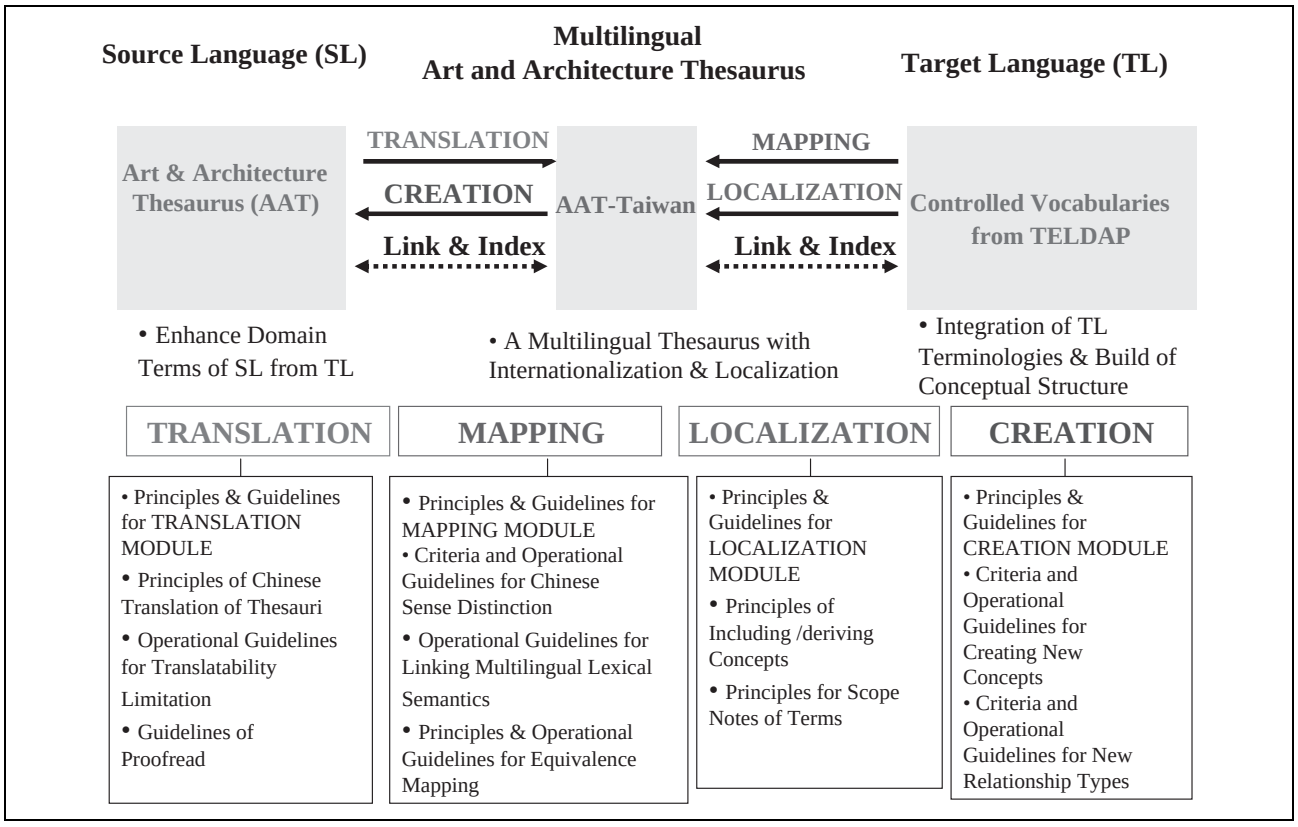

Figure 1. Methodological framework of multilingual thesaurus.

and no equivalence. In the first phase of the project, thousands of controlled vocabularies from the National Palace Museum (NPM), one of the participating institutions of TELDAP, are selected as sources to map into AAT. The main task of mapping is to identify the types of equivalence based on mapping analysis. The procedure includes verifying SV translation of TV for each term (Table 1), finding the possible equivalent term in SV (Table 2), and then determining the type of term equivalence (Table 3) (Chen and Chen 2011).

Localization. Here "localization" has two meanings; the first refers to the localization process from SV to TV, such as finding at least three authoritative published sources for TV in order to comply with the principle of literary warrant, to collect the synonyms of TV and choose one to be the descriptor, and to add the digital images that can stand for the term. The second meaning refers to the localization process from TV to SV, including all the localization needed when TV and SV are not exactly matched, such as: describing the equivalence type with the SV that is closest in meaning, complementing the scope note of the original SV to cover the conceptual scope of TV, or adjusting the current conceptual structure based on SV in order to match the structure of TV.

Creation. In the process of mapping from TV to SV, the resulting relationships between terms may be partial equivalence or non-equivalence; therefore, the importance of these TV and their compatibility with the scope of SV needs to be evaluated. If we decide to incorporate these terms, we have to enter the Creation module, building a complete term record for TV first, then translating these terms into SV and adding new conceptual structures in SV if needed, finally contributing them to the SV system. Take "中國書體" (Chinese scripts) for example; TV such as "隸書" (clerical scripts), "楷書" (standard scripts) and "篆書" (seal scripts) also describe important forms of Chinese characters, often used in Chinese paintings, but they are not included in SV. However, there are 12 kinds of scripts under <Arabic scripts> in SV, the structure of which is similar to Chinese scripts (e.g. oracle bone scripts, bronze inscriptions, seal scripts, clerical scripts, standard scripts, running scripts, and cursive scripts). It is decided to add a set of <Chinese scripts> with a similar hierarchy under "scripts (writing)- <scripts by form>" in SL (here AAT), as shown in Figure 2.

The TELDAP and ARTStor Collaboration Project (TACP)

The TACP has adopted Dublin Core-based metadata as its metadata format. This metadata format includes: identifier, title, creator, date, description, subject, right,

Table 1. The process of verification for TL "孔雀藍"

TV	SV translation	References	Source of TV
孔雀藍	Peacock blue	Ralph Mayer, *Dictionary of Art Terms and Techniques* (2002) [Chinese version]	Digital Archives Sub-Project of Antiquities in the National Palace Museum – Metadata Specification version 1.2), p. 20

Table 2. The process of mapping for TV "繡花"

TV	Context representing concept	Equivalent concept in SV
繡花	technique > embroidery	Term: embroidering Hierarchy: Processes and Techniques Facet: Activities Facet Note: embroidering (needleworking (process), <needleworking and needleworking techniques>, … Processes and Techniques)

Table 3. The type of equivalence for TV "仰韶文化"

		Example	
Equivalence type	Meaning	TV	SV
Exact Equivalence	Different terms in TELDAP and AAT represent exactly the same concept.	仰韶文化(< 考古學文化) Yangshao Culture (< archaeological period)	**Yangshao** (<Chinese Neolithic periods>, <Chinese prehistoric periods>, … Styles and Periods) ID: 300173481

material, measurements, work type, and repository. Among these, five elements – title, date, work type, right, and repository – are mandatory elements. From February to August of 2010, 14 digital collections with nearly 500 metadata records have been selected for inclusion in the TACP. These collections focus on art, history, archeology, anthropology, and culture. In order to reduce pressure on contributors, TACP only ask contributors to perform two tasks. TACP has developed a team, called TACP Team, to build English metadata for the Chinese-based digital collections. This paper will discuss how the TACP Team builds Dublin Core-based metadata through four procedures, including mapping, selection, translation and control vocabulary.

Mapping. Each of the 14 digital collections has its own metadata design, and some collections have a complicated metadata format with over 100 fields. Therefore, determining how to correctly map rich metadata to simple DC base metadata is a big challenge for the TACP Team. The most important guideline for the mapping procedure is the 'Dublin Core One-to-One Principle', which means that DC metadata only describes one manifestation or version of a resource (Hillmann 2005). The TACP Team looks for collections that follow this principle. For example, the metadata of 'Bronze Rubbings collection database[1] contains full description of bronze information as well as rubbings information. In this case, The TACP Team has selected only rubbings metadata for mapping.

Selection. The second procedure is selection. Development of English metadata for the Chinese-based digital collections faces obstacles resulting from natural language differences between Chinese and English. Chinese collections sometimes include words and stamps that are applied to the object during or after creation. These texts were usually written in classical Chinese without punctuation, such as calligraphy in a Chinese painting (Figure 3, on the top); understanding this form of writing may difficult for modern Chinese-speaking people, not to mention foreigners. In this case, the TACP Team has to decide whether to skip translation of these texts.

Translation. The third procedure is translation, which includes four-steps – preliminary translation, editing by Chinese-speaking editors, proofreading by native-speakers, and finalization by project members. In these

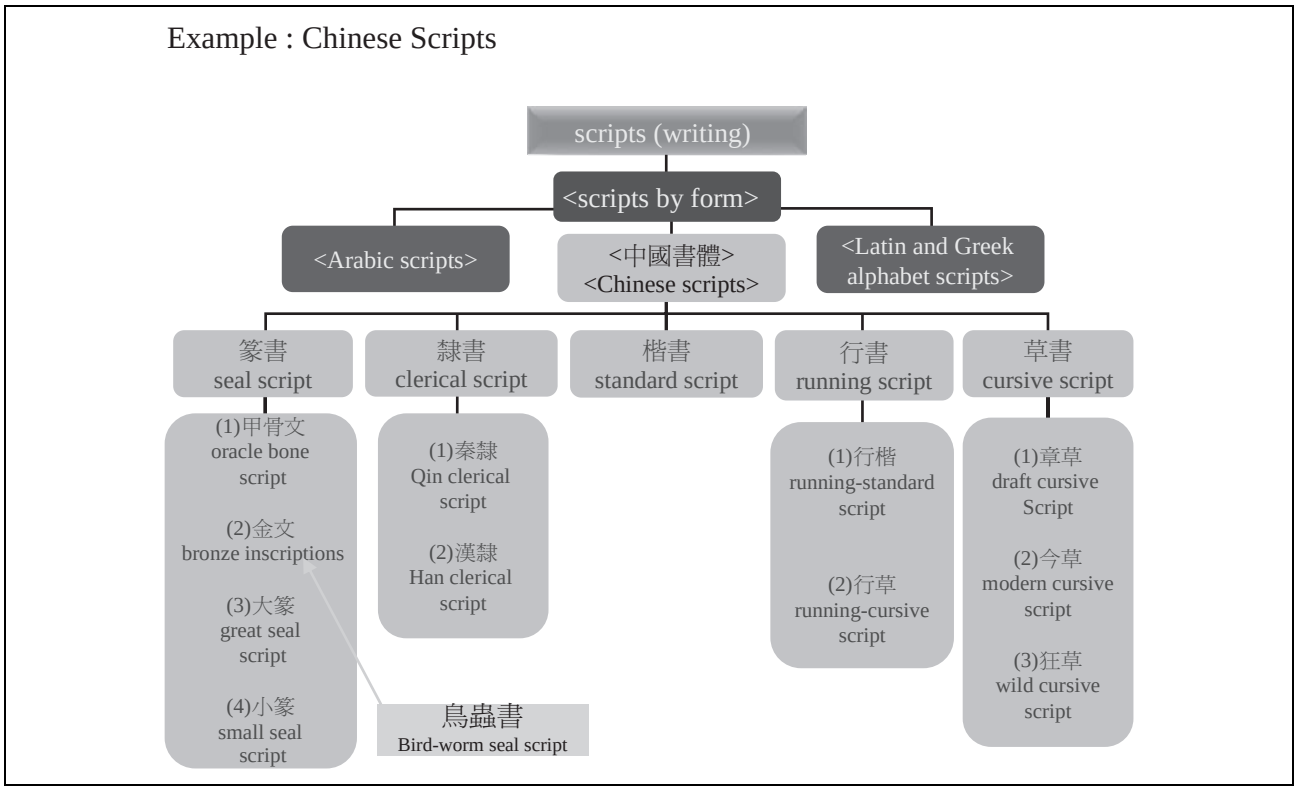

Figure 2. Creation of new terms.

Figure 3. Landscape, Zhang Xing-quan (in Hwa Kang Museum, Taiwan).

four steps, all translations are processed using the same online translation platform (Figure 4), and each translator has his/her account to login. In addition, when encountering difficulties during translation, such as errors in the original Chinese text, wrong image, or multiple translation options, translators can use this online platform to note outstanding issues for the TACP Team to confirm and check later on.

Control vocabulary. The final procedure is the adoption of controlled vocabularies, which include both the Getty AAT (*Art and Architecture Thesaurus*) and TGN (*The Getty Thesaurus of Geographic Names*) (Figure 5). The TACP has adopted AAT descriptors in the field of Work Type, such as photographs, oil paintings, watercolors, and rubbings. If geographic information is important for understanding collections, for example, a place of excavation for archeological artifacts, the TACP Team would try to adopt descriptors in TGN to enhance data discoverability for collections.

Discussion and Conclusion

In this paper we present methodological frameworks of multilinguality in the context of digital libraries, through two international collaboration projects for allowing Chinese-based digital collections of Chinese

Figure 4. The online translation platform.

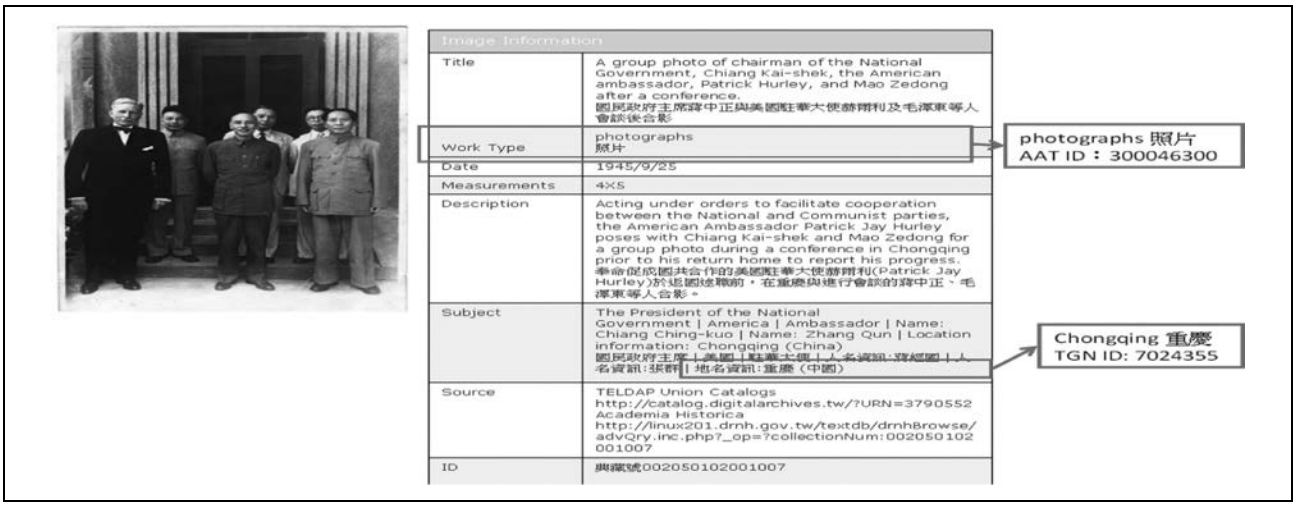

Figure 5. The photograph collection adopts Getty AAT and TGN terms. (in Academia Historica, Taiwan).

fine arts to become more accessible to users of different languages. There are two key issues faced by the two projects as follows.

Varying degrees of semantic equivalence between Chinese and English terms

According to the mapping study of descriptors from the National Palace Museum (in Chinese) and AAT (in English), the findings show six types of term equivalence to varying degrees, which are: exact equivalence, exact equivalence (cross ref.), inexact equivalence, partial equivalence (species-genus relationship), non-equivalence (culture uniqueness), and non-equivalence (beyond the scope) (Chen and Chen 2011). We need to examine each descriptor carefully for each mapping beyond exact equivalence. For

Figure 6. Censers in the context of Western and Chinese culture.

example, a case of inexact equivalence occurs if, in SV, the scope note (Getty Research Institute 2011) of "censers" refers to "containers with perforated covers used for burning incense in a ritual context, especially ecclesiastical" which does not completely fit the concept of "香爐" (Xiang Lu) in TV. We have concluded that Xiang Lu refers to the "container used for burning incense in a religious or ritual context", and is placed in front of the temple or on the altar table depending on its size. So in reality, Xiang Lu and Censers are in inexact equivalence because the former might refer to a container without cover and is not used in ecclesiastical rituals (Figure 6). In this case, we may need to add additional scope notes for the term.

When a term is partially equivalent, it could mean it is either mapped to a narrower term or a broader term. This study shows that most terms in TELDAP are more specific than terms in AAT, so can only be mapped to broader terms in AAT. For example, in the aspect of geometric motifs, the term "dots" appears under "geometric motifs" hierarchy in AAT, and there is no narrower terms under the descriptor. However, in TELDAP the term "dots" appears under "geometric pattern" and below "dots" are "乳丁紋" (nipple nail pattern), "穀紋" (grain pattern), and so on. These terms need to be further discussed to see if they represent important concepts. If they do, then it is necessary to create new concepts for these terms under "dots" in AAT.

Metadata quality vs. cost

During the implementation of TACP, we use the four aforementioned procedures to construct 14 digital collections with nearly 500 metadata records in the 7-month pilot period. However, though these procedures can achieve high quality in the multilingualization of metadata, they are regarded as time consuming and labor-intensive for the project, and also costly. On average, it costs about US$90[2] to create metadata for one object. The after-action review points out two major reasons; one is that the mapping of metadata is time consuming, and the other is that the translation of metadata is time consuming.

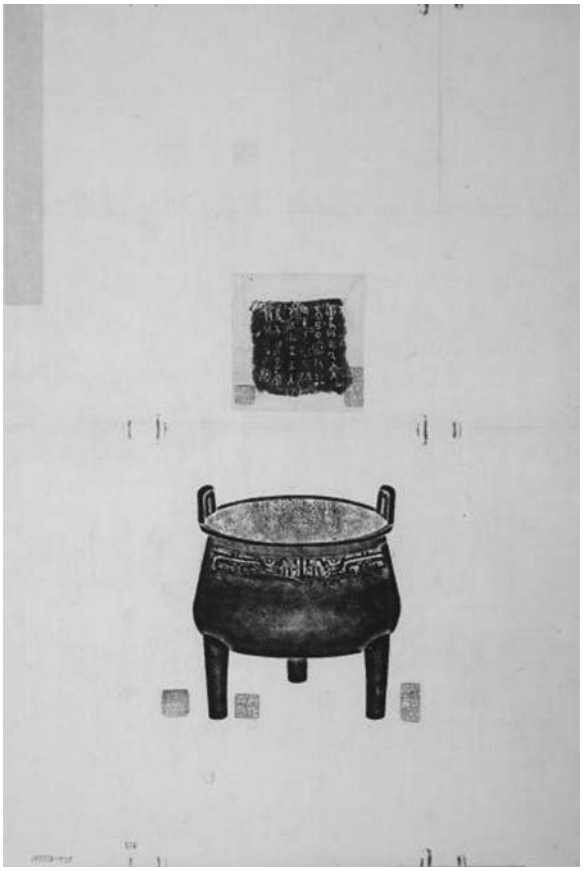

Figure 7. Wei Ding (Ancient Vessel) (In Academia Sinica, Taiwan).

In metadata mapping, in order to encourage the archiving institutions to participate, TACP initially asked only for the institutions to provide object IDs and digital files, and the mapping of object metadata was assigned to the TACP Team. After being put into practice, it was found that the metadata quality of participating institutions showed great discrepancies, such as errors in the original Chinese text, and failure to follow the 'Dublin Core One-to-One Principle,' so it took a lot of time to select from the original object metadata and conduct correct mapping. For instance, it is necessary to ensure that the creation time of the "bronze rubbings" (Figure 7) (around 19th century) is

not mistaken for the creation time of the "bronze ware" (1046–256 BCE), and the work type of "bronze rubbings" is not mistaken for the work type of "bronze ware" (cooking utensil), which makes the cost of time and labor increase greatly.

In metadata translation, the "description" fields in the object metadata of this project are often written in an academic fashion, containing a large number of Chinese art terms with no English equivalents; these are sometimes rare vocabularies that are difficult to look up, resulting in the slower progress of translation. Additionally, the terminology cannot be translated clearly in a couple of words, because the original text is already difficult to understand for Chinese native speakers. Whether to translate the whole text completely (such as translation 1 below) or the selected important parts (such as translation 2 below) is an issue that needs to be faced with in the translation process. For instance, the original text: "王羲之精於章草、隸、八分、飛白、真、行諸體，亦能繪事，後世更尊爲書聖".

Translation 1. Wang Xizhi was skilled in almost all of the calligraphic script types: Zhangcao (one style of cursive scripts), Lishu (clerical script), Bafen, Feibai, Zhengshu, Xingshu (semi-cursive script), etc. He was so influential that later generations elevated him to the supreme position as the "Sage of Calligraphy."

Translation 2. Wang Xizhi was skilled in almost all of the calligraphic script types, and he was already highly regarded in his own time. He was so influential that later generations elevated him to the supreme position as the "Sage of Calligraphy."

For TACP the biggest challenge is how to achieve high quality metadata in spite of the limited human resources, budget, and time to complete the project. Reviewing the four steps performed during the pilot period, we found that the first step (mapping) and the third step (translation) require the greatest commitment of human resources, budget, and time; this can be attributed to the large number of metadata elements at present and the abstruse wording in Description that makes translation difficult. To accelerate the multilingualization process of metadata in order to showcase the digital collections more quickly, TACP might adopt the following strategies as feasible solutions in the future: (1) reducing the number of metadata elements, only translating the six basic fields of Title, Creator, Date, Work Type, Repository, and Right into English; (2) multilingualizing the content of collection-level metadata first, and allowing the elements in Description to remain in Chinese, to be returned to later for multilingualization; (3) using the controlled vocabularies in AAT as "work type" elements to maintain the quality of metadata.

The methodological frameworks of multilinguality in the context of digital libraries, through two multilingualized research projects, have been proposed. The paper is expected to provide controlled vocabularies and metadata as two different ways for the multilingualization strategies of digital libraries in the art domain, which is particularly meaningful for digital humanities in that it contributes to information sharing among artists and scholars of different language and cultural backgrounds by enhancing multilingual search in digital collections.

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Notes

1. Digital Archive of Bronze Rubbings http://rub.ihp.sinica.edu.tw/∼bronze/ (2011-05-09).
2. 1 U.S. dollar = 29 N.T. dollars (Exchange rate in May 2011).

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UDC on the Internet: Theory and project in evolution for use of indexing and retrieval systems

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Abstract
The starting point of this article is to compare the features of faceted classification and ontologies with a re-evaluation of UDC (Universal Decimal Classification) as an analytico-synthetic classification system. We are therefore proposing a theory that was used as the basis of a project in the 1980s but which will imply an advance in the field of information retrieval in the future context of the Internet. This theory is based on the post-coordinated use of LCSH (Library of Congress Subject Headings) and the setting-up of their equivalence with UDC for indexing. The retrieval process is based on the generation of clusters characteristic of data mining and the linking of existing controlled vocabularies and free language in all languages with the corresponding UDC notations. This will be achieved by making UDC compatible with existing classifications, thus profiting from all the knowledge structured so far, thanks to the creation of a suitable format.

Keywords
Universal Decimal Classification, ontologies, Library of Congress Subject Headings, information retrieval, semantic web, indexation, data mining

Introduction

It is well known that one of the most serious problems of the information society and one which affects the Internet is the huge amount of information circulating within it, making it difficult to retrieve.

Today's network is mainly composed of documents written in HTML (HyperText Markup Language), a language used to create hypertext for the Internet. It is useful for designing the basic structure of the document and for including content, but it does not categorize the elements that make up the text. It brings no meaning to the document.

In this sense the semantic web aims to structure, indicate and organize existing information on the web, and detect precise, relevant information according to the user's needs. It also has to be able to detect noise and silence. This paper will take a thorough look at these matters.

Indeed the language that Web 3.0 intends to use, XML (Extensible Markup Language), provides syntax for encoding data, and another of its structural elements, RDF (Resource Description Framework), can be used to model information through a variety of syntax formats. In short, XML encodes the data and RDF gives them meaning or interprets them. XML enables markup to be created but does not express meaning, and one way of creating meaning is to create a link to existing terminology resources (glossaries, dictionaries and thesauri). It is here that the possibility arises of making use of an old tool like classifications because they can be written in XML.

Another tool that has re-emerged with a view to the future web is the ontology. Ontologies define the types and items of an area of knowledge, encode the knowledge of a domain and make it reusable.

An ontology not only enables documents that mention the painter 'Dalí' to be found; it can also let you know that he was a surrealist painter, that he lived at a particular time, that he was born in Figueres in Spain, that he may have been inspired by other artists, and which other artists have been inspired by him. It not only enables all the information that contains the

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characters 'Dalí' to be found, but it also allows new information to be inferred and makes it possible to analyse the knowledge within a knowledge field. For this reason ontologies were believed to have a relevant role in information retrieval.

The weak point of ontologies is that they need to be created and updated. In addition, many researchers believe that thesauri are more useful for text-mining applications than formal ontologies because a thesaurus is an organized collection of terms enriched with relationships.

However, not only alphabetical languages can be compared in efficiency to ontologies. The characteristics of faceted classifications, which include a vast collection of items, relationship specifications and the possibility of inserting terminology from external sources and mapping it with these sources, have made it possible to see great potential for helping in information retrieval in certain tools that do not need to be created because they already exist. Surprisingly, the number of relationships covered in ontology is more limited than that inherent in a faceted schema (Broughton 2006a)

Faceted classifications and UDC as an analytico-synthetic classification evolving into faceted

A report (Classification Research Group 1955), which proposed faceted classification as the basis for all information retrieval, listed the following aspects:

a. the display of useful generic relationships
b. full and accurate cross-referencing
c. accurate application of principles of division
d. a clear citation order
e. established rules for compounding, and
f. an appropriate notation

As far as today's digital context is concerned, (Broughton 2006b) faceted classifications offer the following advantages:

a. the capacity to express through synthesis the complexity of subject content that is typical of digital documents
b. a system syntax that ensures this is managed in a regular and consistent manner
c. a rigorously logical structure that is compatible with machine manipulation at whatever level
d. a structure that is compatible with a graphical interface for end-user navigation and query formulation
e. the facility through variation or rotation of the citation order to allow approaches from a number of angles (i.e. cross domain searching)
f. a structure and methodology that permits conversion to other index language formats (i.e. subject heading lists and thesauri); and
g. features of these integrated tools that allow modifiable keyword searching through mapping vocabularies and vocabulary control via the thesaurus, and provide tools for browsing and display via the subject heading list.

As we mentioned in the introduction, the Internet requires tools that contextualize information, that help to disambiguate the problem of homonyms. In addition to this, the digital environment needs a system that makes it possible to group together different units of content or objects in clusters that may in turn make it possible to carry out efficient searches, and where different notations and items are linked and related hierarchically and systematically to a universal feature like ontologies.

It is in this aspect that the role of classifications becomes important, analytico-synthetic as in the case of UDC, which at the same time is based on a faceted structure.

Among the many contributions and applications UDC offers, we would highlight the following (McIlwaine 2003):

1. The classification codes can be used as a bridge to overcome problems caused by records in different languages.
2. It can help organize resources and build a complete comprehensive architecture of semantic information. As the organization of items is based only on subject and not alphabetical relationships, the subjects and items within a discipline are not unfocused (as happens with alphabetical classifications). Therefore each term expressed alphabetically will be located within a hierarchy and therefore within a semantic network, thereby helping to solve homonymy problems as these items are related to the discipline in question, and also avoiding any ambiguity. In short, this is the polyhierarchy which, in the context of controlled languages, is the hierarchical relationship established between a specific item and two or more that are generic to it.
3. Once a notation has been initially created, it can be used many times and is therefore economical in the long run.
4. It allows the construction of notations equivalent to a descriptor string.

5. It is flexible as it allows elements to be combined (synthetic structure) and the order of subdivisions to be adapted according to need. It is this structure that enables post-coordinated search based on its conception in facets.
6. It allows simplification in the representation of items because the syntax can be applied to relate some terms with others.
7. It covers all the disciplines of knowledge.
8. It is scalable, i.e. it allows choices based on different criteria when classifying regarding the desired level of specificity to be achieved. As this concerns numerical classification ordered on the principle of decimal numbers, it is possible that a particular number may be liable to increase indefinitely, and that it may be subdivided indefinitely by the successive addition of figures.

UDC can be used not only to organize and visualize resources at interface level but also as metadata when indicating them. By this we understand that the most efficient retrieval process is that carried out on document description rather than on the full text of the actual documents, which is how most search engines work on the web today, as we said at the beginning of the paper.

The main criticism made of UDC is that it lacks a citation order. However, this is not completely true as it does have one. The different combination possibilities are at the same time one of the advantages of this classification. In addition, this variety of numbers that can express a single item can be dealt with via the management of a regulated authority index with its corresponding format, which may at the same time offer the item's equivalence in a particular order of alphabetical expressions.

Another point that has been discussed is the fact that the use of the colon sign (:) gives rise to numerical expressions that are too long to express compound numbers and is not terribly elegant. This fact is not important if we consider that in the web environment these numbers can be managed perfectly thanks to computer programs that have already done the job before.

This is an especially interesting point if we think back to the paragraph where we said that faceted schemes were better when it comes to creating relationships. If we add to that the main feature and potential of UDC, which is synthesis or the possibility of combining items, then this number of relationships is multiplied and as a result a more powerful tool can be obtained. This potential is obtained not only at classification level; the possibilities for information retrieval are also increased as it allows post-coordinated search and greater flexibility in the creation of subjects, more than using faceted techniques. And all this is based on structured knowledge that already exists, simply by managing it and controlling it, unlike ontologies that have to be created from scratch.

The basis for the theory and project

If we have tools that help organize and contextualize information, as UDC does, and which overcome linguistic barriers and cover the whole of human science through numerical symbols, then we also need the alphabetical expression of these items.

For the reasons we give below, Library of Congress Subject Headings (LCSH), in the area of traditional retrieval systems, have also been used in OPACs [Online Public Access Catalogs), a typically more representative system used mainly in multidisciplinary information centres in Europe:

a. they have a rich vocabulary that covers all disciplines of knowledge, although on a general level
b. they control synonyms and homonyms
c. they have the support of the Library of Congress;
d. they have been translated into many languages and adopted by many libraries
e. they facilitate browsing
f. they are found in millions of bibliographical registers.

However, the rapid increase in resources available on the web makes it necessary to have a simpler alternative subject schema for metadata, which when retrieving information adapts itself to the users, without the need for them to know the languages from a technical point of view, and not as thoroughly as information and document professionals, because: (Dean 2003)

a. LCSH syntax is not compatible with many other controlled languages
b. outside the OPACs environment, the pre-coordinated structure of LCSH is not amenable to search engines that need a simpler post-coordinated schema adaptable to large volumes of information and an automated environment
c. the pre-coordinated structure of the heading strings is costly to maintain because the use of LCSH requires highly qualified personnel to carry out controls and checks, and therefore it is not capable of facilitating automatic indexation
d. the syntax is complex and requires complex rules when being applied.

For example: the subdivision 'Breeds' is not admitted under heading: 650 7 Pets, although it is admitted under heading: 650 7 Animals.

It was for this reason that, at the start of the 21st century, the OCLC (Online Computer Library Center) made a start on decomposing subject headings (LCSH) so they could be used in a post-coordinated way, adapting them to digital requirements. This project is known as FAST (Faceted Application of Subject Terminology).

The theory we present below was created and put into practice in 1987 at the Generalitat de Catalunya's Centre de Documentació Juvenil, part of the Direcció General de Joventut (the Catalonian regional government's Young People's Archive), and in 1993 at the Generalitat de Catalunya's Hemeroteca Nacional de Catalunya, part of the Departament de Cultura (the Catalonian regional government's National Newspaper Library).

Specifically, the theory we propose is based on the creation of polyvalent indexing and retrieval systems which at the same time act on their own feedback. It was to this effect that the decomposition of the subject headings in the Llista d'Encapçalaments de Matèria en Català (List of Subject Headings in Catalan – LEMAC) was carried out, based on the translation and adaptation of LCSH, like the FAST project has done over the last decade. This decomposition was in turn linked to the corresponding UDC notation. However, it followed a very particular order that we will detail below and which is the basis for the innovation that also applies in our Internet era.

Indexing system

The indexing system is based on the following premise:

1. The system's functioning is based on the equivalence or transliteration of UDC with a system of primary descriptors assigned in a logical order "nuclear" representing the main content of the document. We call it "nuclear" because the indexing start from the nucleous of the content or the main subject of the document.
2. The secondary descriptors are expressed in the same order but without UDC correspondence.

In other words the aim is to give a logical order to the indexing terms originating from the pre-coordinated document languages, specifically LCSH, using them as descriptors.

If we substituted the use of the headings by descriptors, strictly applied without an order, it would cause a lack of precision in information retrieval. Hence the proposal to use LCSH, but as descriptors, breaking the pre-coordinated strings and providing an order that does not take into account the pre-established rules of pre-coordinated languages but which corresponds to the use of logic. We call this order 'nuclear order'.

What is proposed for this system on the one hand is a particular logical, nuclear order in alphabetical languages, and on the other, their transliteration expressed through the use of UDC.

We propose a new indexing system that uses the language of LCSH as descriptors, breaking the pre-coordinated strings, and the UDC as a universal ontology. In other words it concerns the use of LCSH in a decomposed way, adapting the FAST project, associating them in nuclear order with UDC, operating in this way like a product, but with the possibility of giving feedback to this tool we aim to create, by building new associations based on the casuistry of indexing and classification that comes about as documents appear. An authority file is therefore constantly being fed and this in turn serves to tag new documents.

Below we show a number of various real documents taken from the Library of Congress catalog, indexed according to LCSH and classified according to both the online version of UDC and the indexing system proposed in this paper:

EXAMPLE N°. 1:
LC Control No.: 2007044015

LCCN Permalink: http://lccn.loc.gov/2007044015
000 01583cam a2200325 a 450
001 15076957
005 20090828071611.0
008 071109s2008 ncub b 001 0 eng
906 __ |a 7 |b cbc |c orignew |d 1 |e ecip |f 20 |g y-gencatlg
925 0_ |a acquire |b 2 shelf copies |x policy default
955 __ |a sb16 2007-11-09 |i sb16 2007-11-09 |e sb21
2007-11-09 to dewey |a aa28 2007-11-09 |a ps10
2008-03-17 1 copy rec'd., to CIP ver. |a sb00 2008-03-
20 |f sb21 2008-03-20 Z-CipVer |g sb21 2008-03-20 to
BCCD |a ld11 2008-03-20 copy 2 to BCCD
010 __ |a 2007044015
020 __ |a 9781594604867 (alk. paper)
020 __ |a 159460486X (alk. paper)
035 __ |a (OCoLC)ocn181079163
035 __ |a (OCoLC)181079163 |z (OCoLC) 174929366
040 __ |a DLC |c DLC |d BAKER |d C#P |d YDXCP |d BTCTA |d
DLC

043 __ |a e-sp—
050 00 |a HN590.C354 |b M46 2008
082 00 |a 305.5/2094670902 |2 22
100 1_ |a Mendonsa, Eugene L.
245 14 |a The scripting of domination in medieval Catalonia : |b an anthropological view / |c Eugene L. Mendonsa.
260 __ |a Durham, N.C. : |b Carolina Academic Press, |c c2008.
300 __ |a xxvi, 210 p. : |b maps ; |c 23 cm.
504 __ |a Includes bibliographical references and index.
505 0_ |a A legal history of Catalonia – The social organization of early Catalonia – The seigneurie banale – The crown as an extortionate state.
651 _0 |a Catalonia (Spain) |x Social conditions.
650 _0 |a Elite (Social sciences) |z Spain |z Catalonia |x History.
650 _0 |a Feudalism |z Spain |z Catalonia |x History.
856 41 |3 Table of contents only |u http://www.loc.gov/catdir/toc/ecip083/2007044015.html

All these entries can be reduced to just this one following the nuclear order proposed:

Elite (social sciences); Social conditions; Spain-Catalonia; History; Feudalism

which would have correspondence with the following UDC notation:

304-58(46)(091)"4/14"

EXAMPLE N°. 2:

86045052
LCCN Permalink: http://lccn.loc.gov/86045052
000 00899cam a2200265 a 450
001 4771646
005 19950824090503.8
008 860613s1987 maua b 001 0 eng
035 __ |9 (DLC)86045052
906 __ |a 7 |b cbc |c orignew |d 1 |e ocip |f 19 |g y-gencatlg
010 __ |a 86045052
020 __ |a 0669130877 (alk. paper)
040 __ |a DLC |c DLC |d DLC
043 __ |a n-us—
050 00 |a HC110.C6 |b M36 1987
082 00 |a 658.8/348 |2 19
100 1_ |a McNeal, James U.
245 10 |a Children as consumers : |b insights and implications / |c James U. McNeal.
260 __ |a Lexington, Mass. : |b Lexington Books, |c c1987.
300 __ |a xvi, 211 p. : |b ill. ; |c 24 cm.
504 __ |a Bibliography: p. [191]-205.
500 __ |a Includes index.
650 _0 |a Child consumers |z United States.
650 _0 |a Television advertising and children |z United States.
991 __ |b c-GenColl |h HC110.C6 |i M36 1987 |p 00009532171 |t Copy 1 |w BOO

According to the meaning of this document's content, if we apply our system, which follows a logical, nuclear order, this will become:

Television advertising; Children consumers; United States

which in UDC would be:

659.2::366-053.2(7)

Here we can see the function of the double colon sign (::) in UDC, since it enables us to express the order we are talking about.

EXAMPLE N°. 3:
LC Control No.: 2010039934

LCCN Permalink: http://lccn.loc.gov/2010039934
000 03044cam a22003618a 450
001 16464290
005 20100921122512.0
008 100917s2011 enk b 001 0 eng
906 __ |a 7 |b cbc |c orignew |d 1 |e ecip |f 20 |g y-gencatlg
925 0_ |a acquire |b 2 shelf copies |x policy default
955 __ |b re10 2010-09-17 |i re10 2010-09-17 ONIX |w rd11
2010-09-21
010 __ |a 2010039934
020 __ |a 9780521518048 (hardback)
020 __ |a 9780521736688 (pb)
040 __ |a DLC |c DLC
042 __ |a pcc
050 00 |a QK50 |b .K46 2011
082 00 |a 571.2 |2 22
084 __ |a SCI011000 |2 bisacsh
100 1_ |a King, John, |d 1938-
245 10 |a Reaching for the sun : |b how plants work / |c **John King.**
250 __ |a 2nd ed.
260 __ |a Cambridge ; |a New York : |b Cambridge University Press, |c 2011.
263 __ |a 1102

300 __ |a p. cm.
520 __ |a "From their ability to use energy from sunlight to
make their own food, to combating attacks from diseases
and predators, plants have evolved an amazing range of
life-sustaining strategies. Written with the non-specialist in
mind, John King's lively natural history explains how plants
function, from how they gain energy and nutrition to how
they grow, develop and ultimately die. New to this edition
is a section devoted to plants and the environment,
exploring how problems created by human activi ties, such
as global warming, pollution of land, water and air, and
increasing ocean acidity, are impacting on the lives of
plants. King's narrative provides a simple, highly readable
introduction, with boxes in each chapter offering additional
or more advanced material for readers seeking more
detail. He concludes that despite the challenges posed by
growing environmental perils, plants will continue to
dominate our planet"– |c Provided by publisher.
504 __ |a Includes bibliographical references and index.
505 8_ |a Machine generated contents note: Preface to the
Second Edition; Preface to the First Edition; Part I. Plants and Energy: 1. Photosynthesis: the leitmotiv of life; 2. Plant respiration: breathing without lungs; References; Part II. Plant Nutrition: 3. Plants are cool, but why?; 4. Nutrition for the healthy lifestyle; 5. Nitrogen, nitrogen, everywhere . . . ; 6. Transport of delights; References; Part III. Growth and Development: 7. Growth: the long and the short of it; 8. The time of their lives; 9. A dash of seasoning; 10. Dormancy: a matter of survival; 11. Color, fragrance, and flavor; References; Part IV. Stress, Defense, and Decline: 12. Stressful tranquility; 13. Chemical warfare; 14. Senescence and death; References; Part V. Plants and the Environment: 15. Elemental cycles; 16. The human touch; Genetic engineering in a rapidly changing world ; References; Epilogue; Index.
650 _0 |a Plants.
650 _0 |a Botany.
650 _7 |a SCIENCE / Life Sciences / Botany |2 bisacsh.
856 42 |3 Cover image |u
http://assets.cambridge.org/97805215/18048/cover/9780
521518048.jpg
963 __ |a Radha; phone: 44-42922999; email: radha@newgenimaging.com; bc: sreid@cambridge.org

This is a clear example of how important it is to use UDC as regards alphabetical language because this document talks at great length about how plants function, which would be represented only by: 650 -0 Plants and 650 -0 Botany, so the alphabetic expression does not explain the full scope that is explained by the numeric expression. (see the following paragraph).

According to our system, however, the alphabetical part would be represented by:

Plants

while the UDC would be:

681.1/5(0.06)

What this notation expresses via the extension sign (/) manages to represent the full scope of the document's content (505 8-), which goes from 1 to 5 in the UDC tables, something that with the heading Plants alone we are unable to achieve with the same degree of precision.

As far as visualizing the document's description is concerned, this follows a specific order and includes descriptors and identifiers in the same field. This order does not mean the order in which they appear in the document, but the order of the main items in the document. The secondary descriptors are assigned in a different field defined by the computer system and will appear in the same order following the same criterion. We think it is very important to be able to weight the indexing terms so as to see which subjects are treated on a primary level and which on a secondary, as well as what points of view or other facets predominate, as these increase precision.

In general the system has the following advantages:

1. It provides a high degree of CONSISTENCY in both retrieval and indexing because it offers user guidelines for the indexer, as we will see later.
2. It provides a high degree of PRECISION since the weighting in primary and secondary heading strings (used as descriptors) favours discrimination between relevant and less relevant information.

3. It provides a high degree of UNIFORMITY AND HOMOGENEITY as the indicators use the same terms to represent the same items.
4. It provides a high degree of SPECIFICITY because, due to the UDC/descriptor correspondence, no set or string of primary or secondary descriptors will be more general or more specific than its UDC number.
5. It provides a high degree of EXHAUSTIVENESS as all the items that express the same content will always be present.
6. NOISE is reduced.
7. Results are more RELEVANT.
8. It is EASY and STRAIGHTFORWARD to use.

This theory was applied in a multidisciplinary database environment covering practically all document formats existing in the 1980s, well before the appearance of the Internet and at a time when the computerization of information systems was still at a very early stage in Spain. However, we believe it is still valid.

Indeed we have seen not just one Internet generation go by, but two. And we do not believe that the transition from Web 2.0 to Web 3.0 or the semantic web will be in vain.

In fact the free tagging carried out by users these days is necessary in so far as it implies the free-language enrichment of metadata which go on to form part of the Internet, so they can later be organized with the intelligent web in mind.

It is at this point that our project evolves as we propose to channel, link and map this free language including terms not accepted by LCSH. This will be carried out at a multilingual level with each of the decomposed LCSH headings following 'nuclear order', and hence with the UDC. All this will be managed from a universal authority file, e.g. VIAF (Virtual International Authority File).

If in addition to this we include the possibility of integrating all controlled languages existing also in different languages, the semantics increase if we continue in the same way.

Retrieval system

Complementary to this indexing system is the retrieval system.

So as to give a clearer idea of the system, we need to mention the descriptor/UDC and UDC/descriptor permutation indexes. These are generated by the system and concern how data are ordered and processed internally. They make it easier to compare terms and notations within the same item according to their proximity, and this represents their frequency of use. From this basis we can establish whether a set of descriptors has a corresponding UDC notation representing the same item. The indexers therefore have a model to follow when they need to represent the same item and, in the case of a single indexer, they can be sure they are acting consistently if the item appears more than once. Here we should also mention another of the properties and advantages of the system, its consistency, as this is one of the biggest problems as regards indexing. The example below shows the greater or lesser relevance for each word or term used depending on the order that the descriptor occupies:

Arithmetic; Primary education; Education	511:373.43
Arithmetic; Primary education; Curriculum innovation	511:371.014.5
Arithmetic; Primary education; Curriculum innovation	511:371.014.5
Arithmetic; Primary education; Curriculum innovation	511:371.014.5
Musical education; Primary educatio	78:373.3.02

In the context of the Internet, these indexes can contribute to search engine efficiency because, in order to outline these clusters or groups by similarity of features, they are based on algorithms characteristic of data mining. It must be mentioned that the retrieval system applied to the Internet can detect the group both by similarity of UDC numbers and numerical clusters, and by the grouping of strings of terms, isolated terms and alphabetical clusters. This is where its potential lies. It is also planned to use proximity operators.

The retrieval system would not necessarily have to visualize these permutated indexes that would facilitate the hypertext link of all these terms. But it would in order to index.

The system could also offer and generate suggestions or recommend alternative retrieval strategies depending on the search terms.

One thing that would be desirable is that under the description of each document (obtained as a result of a search using free language or keywords that would be linked to controlled terms and refer to logic constructions) it would be possible to visualize two indexing fields: one corresponding to the string(s) of primary logic descriptors and another corresponding to the string(s) of secondary logic descriptors, avoiding classification numbers that would function internally. This is in contrast to the lack of information referring

to the content of the documents that currently appear on the web as search results. The content of the document and its presentation are two completely different aspects.

As regards the use and evolutionary performance of the Universal Decimal Classification of this project as applied to the Internet, it would be a good idea to work on making UDC compatible with other classifications. This would be possible if there were an initial attempt to string together the semantics of the terms corresponding to the numerical expressions of each centre. It would then be possible to take advantage of all universal knowledge structured so far and in the future. For this to happen a suitable classification format would need to be created.

Professional conclusions and a view to the future

The fact that many specialists in a particular type of classification are completely familiar with it but know no other types has meant that the creation of tools for managing the use of classifications has been limited. Their full potential needs to be known in order to maintain them, implement them and change them easily and thereby make it cheaper and more efficient to apply them because techniques for building and using them can be made available to anyone (Slavic 2007).

This paper presents an ambitious project based not only on an existing classification whose strong points have been described, but also on a theory supported by an indexing and retrieval system that offers advantages with regard to next generation internet. We have also aimed to demonstrate that this is a polyvalent system because the retrieval system serves as a basis and a guide for indexing, and the indexing system acts in the same way for retrieval.

With all that has been set out so far, the documentalist may play a key role in the evolution of today's Internet into the intelligent or semantic web.

A wealth of opportunity is opening up for us to participate through our knowledge of classification and indexing that will make information retrieval easier.

Software specialists and linguists should open their doors to participation from information specialists, i.e. librarians and documentalists, and work with them. These are the people who for many years have known how information is structured and organized through practice in applying and working with suitable technical tools, UDC being a clear example along with heading lists and descriptors.

As this paper shows, these traditional tools are not obsolete. On the contrary, they may be considered indispensable when setting up an intelligent network.

Knowledge mapping would therefore have to be led by the correlation of decomposed material headings, descriptors and words in natural language in all languages with their equivalence in the classification proposed.

We trust that this contribution will not be put aside and that those in charge of W3C will give it the attention it deserves.

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UNIMARC and linked data

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Abstract

The main objective of this paper is to present arguments for and recommendations to representing UNIMARC formats for bibliographic and authority data in RDF (Resource Description Framework), the W3C standard for structuring data in Semantic Web and Linked Data environment. This is a continuation of the work already started by IFLA's respective groups in representing International Standard Bibliographic Description, and conceptual models Functional Requirements for Bibliographic Records, Functional Requirements for Authority Data and Functional Requirements for Subject Authority Data. The authors highly recommend that the Permanent UNIMARC Committee propose to IFLA the funding of the development of UNIMARC representation in RDF as a research and development project.

Keywords

UNIMARC, library linked data, Semantic Web, bibliographic metadata, authority control, interoperability

Introduction and background

"The term Linked Data refers to a set of best practices for publishing and connecting structured data on the Web."[1] In this approach, data is expressed as simple statements using Resource Description Framework (RDF), and connected using machine-readable identifiers conforming to the syntaxes of the Uniform Resource Identifier (URI). RDF statements take the form of a three-part subject-predicate-object structure, with the subject identifying what the statement is about, the predicate identifying the specific aspect of the subject being described, and the object identifying or presenting the value of that aspect. An RDF statement is therefore commonly known as a 'triple'. The basis of a triple is its predicate, which is represented as an RDF property, and the specific subject and object of a triple are represented as members of RDF classes. Classes describe things, and properties describe the relationship between those things; classes and properties are the basic types of element in RDF. The thing described as a class can be any type of resource or entity we want to make a statement about; it is used as the subject of a triple. Controlled terminologies used as the objects of triples can be represented as 'value vocabularies' using Simple Knowledge Organization System (SKOS)[2], which is a special set of RDF elements designed for simple thesauri and taxonomies. The object can also be represented as a literal string of data, such as a personal name, edition statement, etc., not supported by a vocabulary or controlled terminology.

A triple is essentially metadata, or data about data; in this case data about the subject of the triple. Linked data should therefore be of particular interest to the library community, which has evolved sophisticated user-centred approaches to bibliographic metadata in the form of catalogues governed by internationally-agreed standards. A feature of linked data is its web-scale, the Semantic Web, allowing the sharing of data at a global level between multiple heterogeneous sources. Again, this should be a significant utility for libraries, which have been exchanging machine-readable cataloguing (MARC) records since the 1960s.

Library linked data derived from existing records based on international standards will be of high quality and high quantity, covering many of the available information resources in which users of the Semantic

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Web are likely to be interested. OCLC's WorldCat alone contains over 230 million bibliographic records[3]. An analysis of MARC content[4] found over 13 million subfields in approximately 420,000 records; assuming that each subfield can generate one triple, this suggests an average of 31 potential triples per record. This figure is not reduced by the effects of duplication within WorldCat, as it is easily offset by records not aggregated in WorldCat, indicating that there must be at least billions of triples locked in legacy records. Of equal importance are the data created by libraries for authority control, covering persons, organizations, places, subject topics, and other things likely to be of interest to a wider audience than traditional users of libraries.

Using current library standards as the bases of new triples and the extraction of triples from legacy records requires the representation of such standards in RDF, either by creating appropriate RDF elements or mapping to existing elements. This will not just allow the Semantic Web to benefit from library metadata; it should also improve interoperability between bibliographic entities, attributes, and relationships described by different, but related, standards. RDF properties can be chosen from different standards and mixed within a single application to meet its functional requirements, using a Dublin Core Application Profile[5] or ontology expressed in Web Ontology Language (OWL)[6].

IFLA, as a standardizing body, should be particularly interested in entering the Linked Data and Semantic Web environment because of its mandate to develop and maintain bibliographic models and standards, and thus enable the library community to better serve its users in technologically changing conditions. Besides, by supporting developments leading towards the presentation of its internationally-agreed upon standards in RDF, IFLA provides authenticity and trustworthiness in library-produced metadata which is of exceptional importance in an environment which lets "anyone say anything about any resource", while at the same time promoting its brand beyond library community boundaries. Using explicitly defined relationships "it is possible to computationally create a web of trust (Golbeck and Parsia). Establishing a system of trust in the Semantic Web will make it easier for computers to determine which information comes from an authoritative source and which does not"[7].

The first initiative to start reviewing IFLA's standards in the context of Web technologies and services can be traced back to 2006 when the IFLA Cataloguing Section's ISBD (International Standard Bibliographic Description) Review Group decided to act upon its Material Designations Study Group recommendation to develop an XML (eXtensible Markup Language) schema for the ISBD. The ISBD/XML Study Group[8] was set up in 2008 with such an objective; however, as the work by the FRBR (Functional Requirements for Bibliographic Records) Review Group[9] on FRBR[10] related to RDF had started in the previous year, the Study Group decided to bypass a general XML mark-up, and consider representing ISBD itself in RDF. The Study Group's project is now in its third year to be continued in 2012.[11,12] The FRBR Review Group continued its work on representing IFLA models, extending it to the models for authority data (Functional Requirements for Authority Data (FRAD[13])), and subject authority data (Functional Requirements for Subject Authority Data (FRSAD[14])). All three models as well as ISBD have been created using the Open Metadata Registry (OMR)[15].

It should be mentioned, however, that all these activities have been liaising with similar research in the field by other interested parties, feeding back into the development of IFLA standards representations in RDF[i]. It should also be noted that research was done to test the potential for applying RDA: Resource Description and Access as a content standard for UNIMARC, in addition to and in alignment with ISBD, in the context of the Semantic Web[16].

The latest, third editions of UNIMARC formats for bibliographic and authority data were published in 2007[17] and 2009[18] respectively, with subsequent updates in preparation by the Permanent UNIMARC Committee (PUC). UNIMARC for authority data has already, in its 3rd edition, implemented specific features of the FRAD model in order to be aligned more closely to that model[19], while its alignment with FRSAD is still pending. The alignment of UNIMARC for bibliographic data with FRBR, and also the new, consolidated edition of ISBD[20], is in the process of approval. It goes without saying that UNIMARC formats follow closely other IFLA standards; in the case of bibliographic data this is ISBD in particular. Thus, the work on representing UNIMARC in RDF specifically for bibliographic data is the extension of the ISBD/XML Study Group's work, which forms the basis of this paper.

UNIMARC namespaces

RDF requires classes and properties to be given machine-processable identifiers conforming to the syntax of the Uniform Resource Identifier (URI)[21]. A set of URIs with basic information about corresponding classes and properties, and published and managed in a single context is known as a namespace. All URIs in a namespace will usually be constructed from a common string of characters, known as a base domain, to which is added a distinguishing string, known as a local part. One advantage of this approach

is that the base domain can be abbreviated to shorten the URI for display to humans; it is expanded automatically for machine-processing. UNIMARC RDF elements and vocabularies will initially be created and maintained using the OMR, following the same approach used for ISBD and the Functional Requirements family of metadata models (FRBR, FRAD, and FRSAD). In particular, the OMR supports multilingual labels and other annotations. This is an important requirement for IFLA standards which are intended for application in an international environment and designed for multilingual interoperability. UNIMARC has been translated from English into Chinese, Croatian, French, Italian, Lithuanian, Portuguese, Russian, etc. RDF is essentially language-neutral because it is intended for machine-processing, but allows labels, definitions, scope notes, and other annotations in multiple languages to be assigned to the same element. The longer-term infrastructure required to manage IFLA namespaces will be investigated and developed by the IFLA Namespaces Technical Group, following the recommendations made in the report by that Group[22].

Identifying UNIMARC elements by tag/subfield/character position

In this paper, abbreviated codes are used to identify UNIMARC elements specified by tags (fields), subfields, indicators, and character positions in the 1- Coded Information Block, using the pattern:

> tag + 1st indicator + 2nd indicator + subfield code; using "b" to indicate a blank indicator or hash (#) value for a space.

The subfield identifier ($) is not required because each abbreviated code pertains to a single subfield, with the sixth position indicating the subfield code.

> e.g. 010bba = Number (ISBN)
> e.g. 2001ba = Title Proper (title is significant)
> e.g. 2000ba = Title Proper (title is insignificant)

For the Coded information block, the character position is added to form the abbreviated code.

> e.g. 100bba8 = Type of publication date code
> e.g. 100bba17-19 = Target audience code
> e.g. 100bba34-35 = Script of title code

Namespace domains

One or more namespaces with corresponding base domains will be required to represent UNIMARC elements and vocabularies in RDF.

Re-use of existing namespaces

It is good practice to re-use RDF elements and vocabularies from existing namespaces, where appropriate: it saves time and effort in developing the elements and vocabularies, and in maintaining them; it is simpler to develop metadata applications and services; it encourages a mix-and-match approach to applications; it fosters the web of connected elements and linked data. It is most important, however, to ensure that re-used elements are tightly coupled to the standard using them, so that any change in their direct or indirect meaning (semantic neighbourhood) is immediately reflected in the related namespace in order to prevent semantic 'drift' between the two namespaces.

UNIMARC Bibliographic is aligned with ISBD, which already has a published namespace for its element set and vocabularies for the Content form and media type area (area 0). So there is a choice for UNIMARC:

1. Re-use ISBD classes and properties where appropriate, instead of creating separate ones in the UNIMARC Bibliographic namespace. This option is only appropriate if proposed changes to either standard involve consideration of the impact on the other standard; that is, if both standards are managed and maintained 'as one'.
2. Represent all UNIMARC Bibliographic elements in a specified UNIMARC namespace, and link to equivalent classes and properties in the ISBD namespace. This option should be chosen if ISBD and UNIMARC continue to be developed separately, even if there is close liaison between them.

This choice must be made before there is any substantive development of a namespace for UNIMARC Bibliographic Format.

Table 1 shows an example of mapping potential UNIMARC/B properties to existing ISBD properties. Note that the namespace domain of each of the UNIMARC and ISBD property URIs is not included for the sake of brevity.

UNIMARC Authorities, as already mentioned, "takes into account attributes of the entities and entity relationships as specified in the *Functional Requirements for Authority Data: Conceptual Model* (FRAD)"[ii], in the following aspects: "change of terminology, definition of fields, and control subfield $5, Relationship Control [...]. The blocks are renamed to 2– Authorized Access Point, 4– Variant Access Point, 5– Related Access

Table 1. Example of mapping UNIMARC properties to existing ISBD RDF properties: UNIMARC Bibliographic 205 (Edition statement)

UNIMARC	English label	ISBD property	English label
P205bba	has edition statement	P1008	has edition statement
P205bbb	has issue statement*	P1011	has additional edition statement
P205bbd	has parallel edition statement	P1009	has parallel edition statement
P205bbf	has statement of responsibility relating to edition	P1010	has statement of responsibility relating to edition
P205bbg	has subsequent statement of responsibility**	P1010	has statement of responsibility relating to edition

Notes: * Differences in labels, e.g. P205bbb, can be accommodated using the SKOS property for an alternate label. This has been used for some FRBR properties which have different labels in FRAD.
** This is an example where the UNIMARC element is more specific than the ISBD one. To preserve the UNIMARC element and finer granularity, a UNIMARC property is required in the UNIMARC Bibliographic namespace.

Point, and 7– Authorized Access Point in Other Language and/or Script, while tags designate names of the entities which the controlled access points represent, such as Personal Name, Corporate Body Name, Title''[iii]. However, FRAD is a model, while UNIMARC/A is a content carrier at the level of application, so the equivalence of FRAD and UNIMARC/A definitions will need to be checked. Also, unlike ISBD, FRAD is an extension of FRBR, and itself re-uses appropriate FRBR namespace elements. It should be noted that the alignment between UNIMARC Bibliographic and Authorities is an intrinsic one, which means that UNIMARC/A develops following changes and additions to the bibliographic format. The correspondence between UNIMARC/A and UNIMARC/B is specified by subfield $3 in access point fields in UNIMARC/B, and specifically in Guidelines for Use in UNIMARC/A. Therefore, it will be necessary to investigate how to position UNIMARC/A in relation to UNIMARC/B 7– Responsibility Block on the one side and FRAD on the other to determine element relationships for specific instances of linked data. For example, if a specific access point/entry element in a UNIMARC/B record has a corresponding UNIMARC/A record which has also been published in RDF, then a linked data chain can be established between them; otherwise the UNIMARC/B access point, for example 700 Personal Name – Primary Responsibility, used without the reference to the UNIMARC/A field by subfield $3 can be represented as a literal string.

Specific namespaces for UNIMARC

ISBD does not cover access points or headings and their corresponding authority records, so UNIMARC Authorities will not have corresponding ISBD classes or properties. A namespace for UNIMARC Authorities is definitely required.

The example in Table 1 shows that the ISBD elements do not extend to the same level of granularity as UNIMARC Bibliographic, so a namespace for UNIMARC Bibliographic is required for those elements not covered by ISBD, irrespective of the re-use of ISBD elements. UNIMARC Bibliographic and UNIMARC Authorities should have separate namespaces, to reflect the separate publication of the texts and distinguish between similar tag/subfield encodings.

It is proposed that the UNIMARC namespaces should follow the pattern already established by the IFLA Namespaces Task Group for ISBD and FRBR, FRAD, and FRSAD.

For UNIMARC Authorities format elements, the base namespace domain is:

> http://iflastandards.info/ns/unimarc/unimarca/elements/

This can be abbreviated to 'unimarca' for display purposes. Note that this is not a URL; it is a 'cool' URI.

For UNIMARC Bibliographic format elements, the base namespace domain is:

> http://iflastandards.info/ns/unimarc/unimarcb/elements/

This can be abbreviated to 'unimarcb'.

For UNIMARC vocabularies, a separate base domain is used for each vocabulary, following ISBD practice. The base domain consists of a vocabulary-specific identification string added to an overall base domain for UNIMARC vocabularies:

> http://iflastandards.info/ns/unimarc/terms/ + identification string

The specific identification string cannot be based on the tag/indicators/subfield/character position code because some vocabularies, such as Script, are assigned to more than one tag within UNIMARC/B and UNIMARC/A:

UNIMARC/A: 100bba21-22
UNIMARC/B: 100bba34-35

Instead, an abbreviation of the vocabulary title can be used:

e.g. http://iflastandards.info/ns/unimarc/terms/graphicssmd as the namespace for the vocabulary for the specific material designation for graphics used in 116bba1.

This example can be abbreviated to 'unimarcgsmd' for display purposes.

Note that there is no need to use the base domain to indicate if the vocabulary is from Bibliographic or Authorities. Vocabularies can be used as the object of any appropriate property used in a triple, and usage of the vocabulary will be represented in an application profile as a Vocabulary encoding scheme linked to the relevant RDF properties. This approach decouples a vocabulary from its specific use within UNIMARC, and will make it easier for other communities to re-use it for non-UNIMARC applications.

Application profiles

One or more DC Application Profiles will be required for UNIMARC, to represent the re-use, if any, of ISBD and FRAD classes and properties, the use of aggregated statements composed of two or more properties (as in ISBD), the use of specified vocabularies as Vocabulary Encoding Schemes, and any other constraints on the use of elements in a well-formed UNIMARC Bibliographic or Authorities record, such as mandatory and repeatability status.

Both UNIMARC/B and UNIMARC/A specify mandatory elements, and repeatable and non-repeatable elements, in UNIMARC records. Mandatory fields in both formats are 001 Record Identifier, 100 General Processing Data (certain data elements only, identical in both formats), and 801 Originating Source, while specific to a format are 200$a Title Proper in UNIMARC/B (apart from some fields specific to the type of resource), and 2-- Authorized Access Point in UNIMARC/A. Both formats specify repeatable and non-repeatable elements at the level of fields and subfield identifiers, such as 010 ISBN is repeatable, while 010$a Number is not in UNIMARC/B. UNIMARC/A field 220 Authorized Access Point – Family Name is repeatable, but only for alternative script forms, while 220 $a Entry Element is not. The order of subfield identifiers in a UNIMARC record is not specified, as order is determined by the data.

Meta-metadata

Data about a specific UNIMARC record is held in the Record label and 1-- Coded Information Block. This is meta-metadata, or data about metadata. In RDF there are a number of techniques that can be used to represent such data, such as the language qualifier that can be added to a literal string, for example a title, used as the object of a triple; for example "@en" indicates that the string is in English, "@fr" for French, etc. These techniques do not require specific UNIMARC elements, and are excluded from further discussion in this paper.

There are also meta-metadata specific to a UNIMARC record as an instance of the ISO 2709 structured exchange record format, such as Record length, Implementation codes, Indicator length, etc. These elements are not relevant when metadata is represented in RDF as triples.

Coded information block vocabularies

The codes and corresponding values and definitions used in the Coded Information Block to describe a resource (rather than the UNIMARC record) are best represented as a SKOS vocabulary, in the same way as the ISBD Area 0 vocabularies.

The UNIMARC code for a vocabulary term can be used as the local part of its URI.

e.g. http://iflastandards.info/ns/unimarc/terms/graphicssmd#a = "collage"

Where a term code is a number, it should be prefixed with a letter such as "T" (for term) to avoid XML problems with local parts starting with a numeric character; this follows ISBD practice.

Using the term code in this way retains the language-independence of the URI, avoids overloading the URI with semantics, and avoids confusion if the (English) term is changed in the future (say from "collage" to "mixed-media two-dimensional sculpture").

The UNIMARC code itself can be explicitly represented using the skos:notation property. The following example triples using this property have the URI for a term as the subject and the term code as the value of the object:

<http://iflastandards.info/ns/unimarc/terms/graphicssmd#a> skos:notation "a".

(or, using a namespace abbreviation: unimarcgsmd#a skos:notation "a".)
<http://iflastandards.info/ns/unimarc/terms/publicationdatetype#f> skos:notation "f".
<http://iflastandards.info/ns/unimarc/terms/titlescript#ca> skos:notation "ca".

Similarly, the term itself can be represented using the skos:prefLabel property with a language qualifier.

e.g. <http://iflastandards.info/ns/unimarc/terms/graphicssmd#a> skos:prefLabel "collage"@en.
e.g. <http://iflastandards.info/ns/unimarc/terms/publicationdatetype#f> skos:prefLabel "monograph, date of publication uncertain"@en.
e.g. <http://iflastandards.info/ns/unimarc/terms/titlescript#ca> skos:prefLabel "Cyrillic"@en.

Table 2 gives a full example of a Coded Information Block vocabulary with labels in English, Italian and Portuguese taken from official translations of UNIMARC.

Using external SKOS vocabularies

Some UNIMARC coded value sets are explicitly based on an external vocabulary or terminology. For example, the language of incipit in 036bbaz and the language of the item in various places in tag 101 use a 3-letter code taken from Appendix A, which is the same as the MARC List for Languages. This list is available as a SKOS vocabulary[23], which can be used directly in any UNIMARC triples. Similarly, the geographic area codes for 660bba are also available in SKOS.[24]

The country of publication in 102bba uses a 2-letter code from Appendix B, which is ISO 3166–1. This is not the same as the MARC List for Countries which the Library of Congress has also published as a SKOS vocabulary[25]. However, an RDF representation of ISO 3166–1 is available[26], although further investigation of its suitability for UNIMARC is required.

The availability of SKOS representations of other external vocabularies used in UNIMARC needs to be checked and verified. If no SKOS representation can be found, the Permanent UNIMARC Committee would have to contact the owner of the vocabulary to discuss the development of an appropriate representation in RDF.

Some internal UNIMARC vocabularies may already have suitable SKOS representations, even though they are not explicitly based on an external vocabulary or terminology. A possible example is the character set codes used in 100bba26-29. That is, another community may have developed a SKOS representation of a similar vocabulary which contains all of the terms and codes used by UNIMARC; if so, the SKOS URIs can be re-used by UNIMARC. This also requires further investigation and verification, for example by using an ontology search engine such as Swoogle.

Date values

Coded elements which are dates in a specified format, such as year, can be represented using the rdfs:range property. For example, Publication dates 1 and 2 in the UNIMARC Bibliographic General processing data can use the triples (following the URI convention given below):

unimarcb:100bba09-12 rdfs:range xsd:gYear.
unimarcb:100bba13-16 rdfs:range xsd:gYear.

UNIMARC classes

As with ISBD, there is only one RDF class to consider for UNIMARC Bibliographic, excluding classes for Syntax encoding schemes required for aggregated elements, as noted below. This is the ISBD class Resource, which can be used as the domain for all UNIMARC Bibliographic RDF properties; there is no need to create a UNIMARC class for Resource.

Classes for UNIMARC Authorities require further investigation, especially in relation to FRAD/FRSAD. The FRAD namespace has classes for all FRAD entities such as Bibliographic Entity, Name, Identifier, Controlled Access Point, Rules and Agency, and subclasses for Name of a Person, Name of a Corporate Body, Name of a Family and Name of a Work; it also has a sub-class for Corporate Body because its definition is modified from the one in FRBR, and a class for Family which is not defined as an entity in FRBR's published document. The FRAD namespace does not, however, include classes for other entities such as Person, Work, Expression, Manifestation, etc., because they are already published in the FRBR namespace. On analysis, it becomes obvious that FRBR classes do not accommodate all types of possible UNIMARC/A classes: Person, Corporate Body, Work could in general be considered as aligned, but there are examples where some UNIMARC/A types of entities or candidates for classes require special analysis. Such an example is Place which in FRBR is defined simply as 'A location', which can be aligned with UNIMARC/A Territorial or Geographical Name, but not really to Place Access – the access point/field which was originally designed to record the place (country and town) of printing for older

Table 2. Full example of a Coded Information Block vocabulary: Vocabulary of 116bba0 = Coded data for graphics: Specific material designation (column N = Notation, which is also the local part of the URI)

N	PrefLabel@en	PrefLabel@it	PrefLabel@pt	Definition@en	ScopeNote@en
a	collage	collage	colagem	An original work created by affixing various materials (paper, wood, newspaper, cloth, etc.) to a surface.	
b	drawing	disegno	desenho	An original visual representation (other than a print or painting) made with pencil, pen, chalk, or other writing instrument on paper or similar non-rigid support.	
c	painting	pittura	pintura	An original visual representation produced by applying paint to a surface.	
d	photomechanical reproduction	riproduzione fotomeccanica	reprodução fotomecânica	Any picture produced in imitation of another picture through the use of a photographic process to transfer the image to a printing surface.	A snapshot made to document a painting or a Xerox copy of a print are considered photomechanical reproductions. Art reproductions, postcards, posters, and study prints are included here.
e	photonegative	fotonegativo	negativo fotográfico	A piece of film, a glass plate, or paper on which appears a "negative" image, i.e. directly opposite to a "positive" image (photoprint), slide, or transparency. Used to produce a positive print.	Does not include negative photoprints, photoprints that are a combination of negative and positive images, photographs or solarized prints, all of which are considered to be techniques used when making photoprints.
f	photoprint	riproduzione fotografica	positivo fotográfico	A positive image made either directly or indirectly on a sensitised surface by the action of light or other radiant energy.	The term "photoprint" is used here as a more precise term than "photograph", which technically can cover both the print and the negative. Radiographs and opaque stereographs are included here.
h	picture	immagine	imagem	A two-dimensional visual representation accessible to the naked eye and generally on an opaque backing.	This term is used when a more specific designation is unknown or not desired.
i	print	stampa	gravura	A design or picture transferred from an engraved plate, wood block, lithographic stone, or other medium.	Generally, there are four types: planographic print, relief print, intaglio print, and stencil print.

(continued)

Table 2. (continued)

N	PrefLabel@en	PrefLabel@it	PrefLabel@pt	Definition@en	ScopeNote@en
k	technical drawing	disegno tecnico	desenho técnico	A cross section, detail, diagram, elevation, perspective, plan, working plan, etc., made for use in an engineering or other technical context.	
m	master	master	matriz	Any plate, mould, matrix, die etc. which allows the reproduction of the same impression.	
z	other non-projected graphic type	altro tipo di documento grafico non proiettabile	outro material gráfico não-projectável	Types other than collage, drawing, painting, photomechanical reproduction, photonegative, photoprint, picture, print, technical drawing, master.	Includes mixed media productions made by a combination of freehand and printing techniques when one or the other does not predominate. In some cases, where mixed media are applied, one must decide whether the creator intends the item to be a photoprint (even though it is painted over the photographic image). Hand colouring is considered a technique applied to a printing process; this aspect is covered by a character position 3. Computer-produced graphics and the various duplication masters (including spirit masters and transparency masters) are included here.

Notes: Terms, definitions, and scope notes are taken from the following source texts:
@en: http://archive.ifla.org/VI/8/unimarc-concise-bibliographic-format-2008.pdf
@it: http://unimarc-it.wikidot.com/116
@pt: http://www.ifla.org/files/uca/Unimarc_bib_3%C2%AAed_abrev.pdf
Definitions and scope notes include mark-up to show their derivation from the English text.

Table 3. Full example of RDF properties representing a UNIMARC field with no indicators: Edition statement

URI	Label@en	Name
P205bba	has edition statement	hasEditionStatement
P205bbb	has issue statement	hasIssueStatement
P205bbd	has parallel edition statement	hasParallelEditionStatement
P205bbf	has statement of responsibility relating to edition	hasStatementOfResponsibilityRelatingToEdition
P205bbg	has subsequent statement of responsibility	hasSubsequentStatementOfResponsibility

publications, but was subsequently extended to cover Place and Date of Publication, Performance, Provenance, etc.; additionally, as UNIMARC/A is an integrated format for name and subject authorities, the 'place' class should be considered also in the context of FRSAD. Another example is Work/Expression: UNIMARC/A defines among its types of entities the following: title, collective title, name/title and name/collective title, but in its 3rd edition does not distinguish whether the type of entity is Work or Expression[iv]. FRAD has a subclass for Name of a Work, but if UNIMARC defines a new type of entity Expression, it should add to its namespace a UNIMARC subclass for Name of an Expression. Possible classes outside the scope of FRBR and FRAD are the UNIMARC/A types of entities Trademark, and Form, Genre and Physical Characteristics, which FRSAD intentionally excluded from its consideration.

UNIMARC properties

Generally, UNIMARC tag/indicator/subfield elements will be represented as RDF properties, following ISBD practice.

Not all UNIMARC elements are suitable or appropriate for representation as RDF properties. These include the meta-metadata elements discussed above. However, other data in the record label, such as type of record (in both formats) are actually resource metadata; although much of this information should be present in the body of the record, this is not always the case and some of the record label elements will require RDF representation. These elements are identified as, for example, bibliographic and hierarchical levels in UNIMARC/B, and type of entity in UNIMARC/A. This requires further investigation.

The tag/indicator/subfield abbreviated codes used in this paper can form the local part of the URI. 'Slash' URIs are recommended rather than 'hash' URIs where there are large numbers of properties. The local part should be prefixed with a letter to avoid XML problems with local parts starting with a numeric character; ISBD uses 'P' (for property) and UNIMARC can follow this convention. For example, the URI for the Edition Statement might be:

> http://iflastandards.info/ns/unimarc/unimarcb/elements/P205bba
> (or, using the namespace abbreviation: unimarcb: P205bba)

This approach is language-independent, avoids semantic loading of the URI, and avoids confusion if the 'caption' associated with the tag, indicator, or subfield changes.

The caption itself can be represented using the rdfs:label property and RDF language qualifier. The caption may require synthesis from the separate tag, indicator and/or subfield captions. Following ISBD practice, the RDF property labels can be made verbal by prefixing the caption with 'has'.

> e.g. unimarcb:P205bba rdfs:label "has edition statement"@en.

The OMR requires a separate registry name using the reg:name property; this can be constructed in the usual way, as a CamelCase version of the rdfs:label.

> e.g. unimarcb:P205bba reg:name "hasEditionStatement".

Table 3 gives a full example of the RDF properties derived from a single tag with no indicators.

As already discussed, each unique combination of indicators and a subfield within a tag potentially constitutes a separate RDF property, with a suitable distinct label. A method for achieving this is to qualify the subfield caption with the indicator 'caption', as shown in Table 4.

When both indicators are used in a tag, with multiple values for each indicator, the number of potential RDF properties is affected by a combinatorial explosion, as demonstrated in Table 5.

The total number of potential properties for this example is 3 (values for 1st indicator) times 2 (values for 2nd indicator) times 8 (subfields): 48.

There are UNIMARC tags with much larger combination numbers:

> 327 Contents Note: 4 x 2 x 12 = 96
> 620 Place and Date of Publication, Performance, etc.: 7 x 3 x 15 = 315

Table 4. Full example of RDF properties representing a UNIMARC field with a single, binary indicator: Material Specific Area: Cartographic materials – mathematical data

URI	Label@en	Name
P206bba	has mathematical data statement (unstructured)	hasMathematicalDataStatementUnstructured
P206bbb	has statement of scale (unstructured)	hasStatementOfScaleUnstructured
P206bbc	has statement of projection (unstructured)	hasStatementOfProjectionUnstructured
P206bbd	has statement of coordinates (unstructured)	hasStatementOfCoordinatesUnstructured
P206bbe	has statement of zone (unstructured)	hasStatementOfZoneUnstructured
P206bbf	has statement of equinox (unstructured)	hasStatementOfEquinoxUnstructured
P2060ba	has mathematical data statement (structured)	hasMathematicalDataStatementStructured
P2060bb	has statement of scale (structured)	hasStatementOfScaleStructured
P2060bc	has statement of projection (structured)	hasStatementOfProjectionStructured
P2060bd	has statement of coordinates (structured)	hasStatementOfCoordinatesStructured
P2060be	has statement of zone (structured)	hasStatementOfZoneStructured
P2060bf	has statement of equinox (structured)	hasStatementOfEquinoxStructured

Table 5. Partial example of RDF properties representing a UNIMARC field with two multiple-valued indicators: Publication, distribution, etc.

URI	Label@en
P210bba	has place of publication, distribution, etc. (sequence of publication data not applicable or earliest available publisher; produced in multiple copies, usually published or publically *[sic]* distributed)
P210b1a	has place of publication, distribution, etc. (sequence of publication data not applicable or earliest available publisher; not published or publically *[sic]*distributed)
P2100ba	has place of publication, distribution, etc. (intervening publisher; produced in multiple copies, usually published or publically *[sic]* distributed)
P21001a	has place of publication, distribution, etc. (intervening publisher; not published or publically *[sic]* distributed)
P2101ba	has place of publication, distribution, etc. (current or latest publisher; produced in multiple copies, usually published or publically *[sic]* distributed)
P21011a	has place of publication, distribution, etc. (current or latest publisher; not published or publically *[sic]* distributed)

621 Place and Date of Provenance: 7 x 3 x 16 = 336
852 Location and Call Number: 7 x 4 x 16 = 448

These require further investigation to determine if some combinations are invalid and do not require a separate property.

Aggregated statements. All repeatable tags with more than one subfield form an aggregated statement. It is necessary to keep the subfields together for each repeat, so that they do not get mixed up.

e.g. 010bba International Standard Book Number Number + 010bbb: International Standard Book Number Qualification

Aggregated statements are represented in RDF using Syntax encoding schemes (SES), and ISBD practice should be followed. Re-use of ISBD elements which are themselves aggregated statements will avoid the need for developing UNIMARC equivalents.

Conclusion and recommendations

The involvement of IFLA in the activity of publishing its internationally-agreed models and standards in RDF, as the first step to mark-up library metadata as authoritative and trustworthy in the Semantic Web, has already been done. However, although these first steps involve all three conceptual models, FRBR, FRAD and FRSAD, and the bibliographic standard ISBD, further work is necessary. This paper, by presenting some solutions and raising questions for further analysis, argues for the need to represent IFLA's UNIMARC formats – bibliographic and authorities – in the same way. The authors also argue that the coordination of the

work on representing IFLA standards documentation should be brought more closely together because in practice they are considered and used in unison, and also because their further development would be more efficient and economical. Another aspect of the work in representing standards in RDF is that it offers feedback on the standards themselves, their structure, precision in wording concepts and definitions, consistency, interoperability with other related library and different communities metadata standards, etc., which is required in the new technological paradigm of the Semantic Web.

Recommendations to the Permanent UNIMARC Committee for further discussion and approval are:

- Approve the method of identifying UNIMARC elements and vocabularies.
- Decide on initial creation and maintenance of UNIMARC elements and vocabularies in the Open Metadata Registry (OMR).
- Support and promote the translation of UNIMARC classes and properties in national languages.
- Decide between re-use of existing ISBD namespaces for UNIMARC/B or representing all UNIMARC/B elements and link to existing ISBD classes and properties as appropriate.
- Investigate further the re-use of existing FRAD/FRBR and FRSAD namespaces or representing all UNIMARC/A elements and link to existing FRAD/FRBR/FRSAD classes/subclasses and properties as appropriate.
- Approve the pattern for namespaces for UNIMARC/B and /A elements and vocabularies.
- Discuss and consider the requirements for Application Profiles for UNIMARC.
- Check and verify the availability of SKOS representations of other external vocabularies used in UNIMARC.
- Investigate and verify internal UNIMARC vocabularies for suitable SKOS representations; consider approaching the owners of external vocabularies to liaise on developing SKOS representations.
- Investigate further the appropriate classes for UNIMARC/A in relation to UNIMARC/B, FRAD/FRBR and FRSAD.
- Investigate further the "combinatorial explosion" of UNIMARC properties; determine if some combinations are invalid and do not require a separate property.
- Consider and approve the re-use of aggregated ISBD elements which are represented in RDF using Syntax encoding schemes (SES), which will avoid the need for developing UNIMARC equivalents.
- Monitor relevant MARC21 developments, especially the Bibliographic Framework Transition Initiative recently announcement by the Library of Congress[27].

The authors of this paper highly recommend that the PUC propose to IFLA the funding of the development of UNIMARC representation in RDF as a research and development project.

Notes

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iv. PUC has a specific mechanism to distinguish between the Work and Expression in the process of approval, to be published in the next update of UNIMARC formats.

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IFLA President, 2011–2013

First off, I would like to offer my congratulations and gratitude to Dr. Luisa Vigo-Cepeda, Chair of the 2011 WLIC National Committee, and to all the organizers of this momentous conference. It takes a tremendous amount of work and organization to pull off an event of this size and scope. To them I say, you can take great satisfaction in seeing how all your hard work has resulted in such a marvelous success. And I dare say, you are somewhat relieved it is all over and you can get a little rest!

Dear colleagues, what an amazing week it has been. We will return home a little tired perhaps, but also infused with enthusiasm and ideas inspired by the discussions we have had. This conference has been an admirable testament to just how important and useful our joint deliberations and sharing of ideas have become. At a time when libraries are under severe constraints in our respective national and local economies, and when freedom of expression is being challenged in many countries, the global collegiality and cooperation provided by our Association is more important than ever.

It is of course a tremendous honour and privilege to be taking over the role of the IFLA presidency. It has brought to mind a few words that Justice Sonia Sotomayor, the first Hispanic American to be named two years ago to the US Supreme Court said at her confirmation: "I am an ordinary person blessed with extraordinary opportunity." I thank you all with great humility for giving me this opportunity to lead our federation and to work with you over the next two years.

I will be the first to acknowledge that I have a daunting task in succeeding Ellen Tise. I have known and worked with Ellen for a number of years. That she has put her very clear vision and distinctive leadership stamp on our organization is somewhat of an understatement. She has taken her theme of 'Libraries Driving Access To Knowledge' to all parts of the world with incredible energy, integrity and passion.

We also owe her our gratitude for taking the initiative to focus on human rights and her dedication to Open Access and copyright issues. I know these have been subjects near and dear to her heart throughout her tenure, and that she will continue to promote her values in the future.

As I think about Ellen's theme, and Claudia Lux's before her – 'Libraries on the Agenda' - what immediately comes to mind are the notions of continuity and forward movement.

I believe my own theme of 'Libraries – A Force For Change' – encompassing and promoting the principles and practices of inclusion, transformation, innovation, and convergence - follows in that tradition. In whatever language we say the theme, I truly believe that libraries can be – and be seen to be – a true force for change in a world where nations are increasingly facing social and economic challenges.

Over the past 17 years I have attended all the IFLA Annual Conferences, as well as participated in or chaired numerous section, division and governance committees. During that time I have been witness to an amazing evolution in the roles and influence of libraries at national and local levels the world over. And as we all know, over the past few years the speed of that evolution has been increasing at a tremendous rate.

I believe that libraries, perhaps as never before, are in a unique position to be at the center of the democratization of access to information. And in such a context – libraries of all types and sizes can indeed be a positive force for change and influence at local, national and international levels.

To reach that goal I see great merit in focusing our attention on a re-examination of our attitudes and assumptions about ourselves and our users that in turn

will lead to new ideas about how we might better serve our users as institutions and as professionals - and how IFLA might better serve its own members.

It is clear that to realize their full potential libraries must provide inclusive and transformative services which are not only innovative in their own right, but forge new collaborative alliances within and beyond their walls.

To that end we must serve all, without judgement, prejudice or bias. By democratizing access to information, libraries can indeed empower individuals to freely learn, improve their lives and create new knowledge.

Libraries have the potential to innovate by harnessing the power and potential of today's rapidly changing technologies, and can play an essential role for people who wish to access information - irrespective of its format or how it is retrieved or sent out.

And finally we must take on, perhaps as never before, proactive convergence of resources and initiatives. Through collaboration and partnerships, we can reach across disciplines - uniting libraries, museums and archives, and others involved in managing documentary heritage across the world. This opportunity not only unites us across professions, but it makes us more relevant in an age where users want increased access to information from the most convenient and comprehensive sources possible.

Putting such principles into practice will always be a work in progress. But I believe they closely align with IFLA's Strategic Plan and the key initiatives that the Governing Board has identified as intrinsic to that Plan.

A case in point is our Outreach Programme for Advocacy and Development of the Profession to maximize opportunities for strategic advocacy at major events – both within and outside our profession. I would be remiss if I didn't mention the tremendously important work being carried out by our Association on copyright exceptions and limitations, particularly in our advocacy efforts with the World Intellectual Property Organization (WIPO). A great deal of work is now being done in formulating the recommendations that we will be advancing at the WIPO meetings in November. It is exactly this sort of advocacy that promotes the role of libraries and their values on the international stage.

As important as it is to establish principles and plans for action, it is only when they play out at the local level that we are reminded how incredibly important libraries remain to our constituents – the people who walk in through our doors, or use our services. I would like to share a few stories to illustrate this importance.

I am a little hesitant to describe an incident from my hometown of Vancouver, British Columbia but I will. In mid-June our professional ice hockey team was playing a team from Boston in the final game for hockey supremacy in North America. For local citizens, and for all Canadians, it was a very big deal. And we lost the game!

To our great shame some of those same citizens decided the appropriate response was to riot – through burning and looting in the downtown city centre. Despite it all, there were a few upsides. Law abiding citizens, in some cases at the risk of their own personal safety, rushed in to defend people and property. One of those properties was our beautiful Vancouver Public Library, which is an architectural gem in the centre of the city, and unfortunately was almost at the geographic epicenter of the riot.

The overriding sentiment of those who rushed to defend the library from possible damage, and those who commented on Twitter during those few tense hours was basically ''protect our library.'' The end result was that the library only suffered a few broken windows, where regrettably some other buildings were badly damaged.

''Protect our library'' became a rallying cry for how strongly citizens felt about preserving and keeping safe their local library. Similarly, the rallying cry of ''This is our library. It belongs to our children'' was in the minds of the people who protected the library in Alexandria Egypt during the revolution that took place there last January.

Un autre exemple de preservation et protection est le cas de Haiti qui a subi un tremblement de terre devastateur au debut de 2010. Quelques mois plus tard Ellen et moi avons visite Haiti et avons constate les terribles dommages occasionnes par ce tremblement de terre. Mais ce qui m'a frappe fut la force de caractere indomptable de ce peuple. Malgre la devastation qui les entourait, les enfants vetus fierement de leur uniforme scolaire se rendaient a l'ecole. Le besoin vital d'apprendre et de recevoir de l'instruction et de frequenter des bibliotheques demeurait incroyablement forts et presents chez eux.

(Another story of preservation and protection, perhaps more familiar to many of you, regards Haiti, which as you know suffered a devastating earthquake in January of 2010. In June of that year Ellen and I visited Haiti and we saw first hand the tremendous damage that the earthquake had visited upon the island.)

And of course, in the intervening 18 months, there have been other major natural and man-made disasters the world over, resulting in great damage to local infrastructures.

(From a personal witness perspective, of course, the human devastation as well as the destruction and impact on buildings and cultural artifacts that I saw in Haiti will never leave me. What struck me was the indomitable spirit of the people, and in spite of the devastation all around them, amid the mounds of concrete and earth cluttering the streets - children in school uniforms were going to their schools. The need to learn and be educated and wanting to use their libraries remained incredibly strong.)

What these examples tell us is that the preservation or restoration of libraries remains key to a community's, a city's, or a nation's cultural identity and survival. And of course, IFLA has a major role to play in preserving, protecting, and promoting libraries and their use around the world.

Whether we are talking about broad principles and practices or local stories – they all speak to the next steps on the journey we will take together over the next few years. With libraries all over the world under various degrees of stress of all sorts, it is more important than ever that we find strength in our numbers by supporting the work of our Association. By pulling together, I believe our visions and values will work to our collective and individual member advantage. And to the benefit of all people - where we can literally help change lives for the better.

As your President I will need your assistance and support as we pursue this adventure together. It will be a challenging and very exciting time.

I wish you all a speedy and safe trip home and I hope to see you all at next year's WLIC in beautiful Helsinki.

Thank you very much, Au revoir, Hasta luega.

And now I would like to declare the closing of the World Library and Information Congress for 2011.

News

International Federation of
Library Associations and Institutions
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News contents

IFLA policies and programmes

Open Access Taskforce established

Following the endorsement of IFLA's statement on Open Access (http://www.ifla.org/files/hq/news/documents/ifla-statement-on-open-access.pdf) by the Governing Board, April 18th 2011 and the subsequent approval from the Governing Board during the WLIC in Puerto Rica August 2011 of a number of key initiatives IFLA's Open Access Taskforce has been established.

The taskforce will work on the following issues:

- Advocate for the adoption and promotion of open access policies as set out in IFLA's Statement on Open Access within the framework of the United Nations institutions (UN, UNESCO, WHO, FAO).
- Build Capacity within the IFLA Membership to advocate for the adoption of open access policies at the national level, through the development of case studies and best practices for open access promotion.
- Furthermore the taskforce will connect to the various organizations working for Open Access – as indicated in the statement –such as SPARC (US/Europe/Japan), COAR, OASPA, EIFL, Bioline International & DOAJ, among others.

First things to be done is to produce a road map for the work to presented for the IFLA Governing Board in December and as well to begin collecting case studies and best practice related to how national library associations can promote national policies and programs to further foster the progress of Open Access. Please inform me if you have good examples in relation to this.

In cooperation with the IFLA Head Quarters dedicated web pages will be created in order for the community to be able to follow and contribute to the work.

The taskforce has the following members:
Chair: Lars Bjørnshauge, 1st Vice-President, Swedish Library Association

- Leslie Chan, Associate Director, Bioline International, University of Toronto at Scarborough
- Jan Hagerlid, Programme Co-ordinator of Open-Access.se, National Library of Sweden
- Iryna Kuchma, EIFL.Net Open Access Manager, EIFL, Rome, Italy
- Rick Luce, Vice Provost and Director of Libraries, Emory University, USA
- Felipe Martinez, Director, University Center for Library Science Research, National Autonomous University of Mexico
- Bas Savenijie, Director, National Library of the Netherlands
- Xuemao Wang, Associate Vice-Provost, Emory University Libraries, Emory University, USA
- Qiang Zhu, Director, Peking University Library, Beijing, China
- Ann Okerson, Special Advisor on Electronic Strategies, Center for Research Libraries, New Haven, CT, United States
- Derek Law, Professor, University of Strathclyde, Glasgow, United Kingdom

Further information: Lars Bjørnshauge. Mobile phone: +45 53 51 06 03. Skype-Id: lbj-lub0603. Email: elbjoern0603@gmail.com

From IFLA headquarters

New staff member: Joanne Yeomans, Professional Support Officer

I started working for IFLA in September this year but I originally moved to The Netherlands almost three years ago to work for EBLIDA – the European Bureau

of Library, Information and Documentation Associations, which is sometimes described as the European equivalent of IFLA. However, the focus of EBLIDA's work is much more concentrated on lobbying at the European Union, particularly in the areas of copyright and culture. As an 'ordinary' librarian with no legal or lobbying training, the work was very different to what I'd been used to but I found it very stimulating, if not sometimes frustrating: defending libraries, as you may know, is easy to do with moral arguments, less easy from a financial perspective.

What attracted me to the Professional Support Officer position at IFLA was the wide variety of topics in which IFLA is involved. To be able to support people trying to improve fundamental rights such as literacy, and to support the whole range of library activities going on in the many different kinds of libraries all over the world, means that I will be much closer to the work I loved to do when I worked in a library myself.

My career has been mainly spent in university libraries in the UK where I started, briefly, in acquisitions and cataloguing, but after studying part-time to qualify as a professional librarian I moved into subject support where my maths and physics degree could be put to some use. I was passionate about improving information skills training for science students, which I knew from my own experience, was seriously lacking at the time.

I left the UK for Switzerland to work at CERN, the European particle physics research laboratory. The library there specializes in supporting physicists and the engineers who were at the time still building the Large Hadron Collider (LHC). Apart from running the library itself, we managed an open access repository and I also ended up running a bookshop, organizing three big international OAI workshops, and doing a strange variety of jobs such as arranging wine tasting for visitors, helping retired Nobel prize winners doing private research, and making ice cream with a Michelin star chef to serve to dignitaries at the launch of the LHC.

I've had a wide variety of experiences in my career so far but one thing I've never done is to actually work in a public library, although I've always been a heavy user of public libraries since I first visited the mobile library that came to my village near Barnsley when I was a child. For those of you who know him, it was a great pleasure to meet the man responsible for that mobile library, Ian Stringer, a couple of years ago – funnily enough at the IFLA congress in Milan!

So from that library van, which was my first experience of a library, to IFLA HQ, is maybe not such a big step after all. It is a great honour to be able to support the volunteers who carry out the important work of the IFLA sections and committees, and I'm looking forward to learning about the many initiatives that are helping to make libraries so important in people's lives.

Joanne Yeomans, IFLA Headquarters, Tel. +31 70 314 0884. Email: joanne.yeomans@ifla.org

Membership matters

New membership category: Association Affiliation

IFLA is happy to share a new way for emerging and small library associations to join as IFLA members: Association Affiliation. This category is open for library associations who have not been an IFLA member in the last three years, and who work with operating expenses of less than EUR 10,000. The current fee for this category is EUR 58 per year.

Association Affiliates will have free membership registration with the Management of Library Associations Section and – where applicable – with the appropriate Regional Activities Section (Africa, Asia & Oceania or Latin America & the Caribbean). Association Affiliates have no voting rights. Association Affiliates will have all other member services and entitlements that are applicable to Affiliation membership. Association Affiliation is possible for two consecutive years, after which the membership will be upgraded to the appropriate Band, with the corresponding costs and benefits.

We are encouraging interested Associations to get in touch with us. Please contact Membership@ifla.org if you have any further questions.

Disaster Recovery Membership Incentive

An IFLA membership incentive for Library Institutions and Associations in countries which suffered manmade or natural disasters.

The Stichting IFLA Foundation will provide support for IFLA membership for library institutions and associations whose countries are affected by internationally recognized large scale disasters such as natural disasters or armed or post conflict attacks. This enables IFLA members to continue their membership within IFLA, and to continue benefiting from their IFLA membership in their recovery activities.

The principles on which the Stichting bases its decision include the following:

- The IFLA member has been an IFLA member in the year previous to the year in which the disaster happens (either self supporting or sponsored member)
- The IFLA member falls into the category of Institutional or Association Member, or in one of the sub categories
- The proposal meets the objectives of the Stichting.

The support for membership will be for two years: the year of the disaster and the following year.

Institutions and Associations struck by disaster that have not been an IFLA member in the year previous to the disaster, but that would like to join IFLA to benefit from the international network for recovery actions, may also apply for this incentive.

Applicants for the Disaster Recovery Membership Incentive may forward a request to membership@ifla.org

New members

We bid a warm welcome to the 34 members who have joined the Federation between 22 June and 23 September 2011.

National associations

- Consortium des Bibliothèques de l'Enseignement Supérieur du Sénégal (COBESS), Senegal
- Chinese American Librarians Association, United States

Institutional members

- Service Commun de la Documentation, Côte d'Ivoire
- Allame Tabatabaee University, Islamic Republic of Iran
- Instituto de Investigaciones Bibliográficas, Biblioteca y Hemeroteca Nacionales de México (UNAM), Mexico
- Ahmadu Bello University, Kashim Ibrahim Library, Nigeria
- Novosibirsk State Regional Scientific Library, Russian Federation
- Saratov Regional Research Library, Russian Federation
- ATILIM University Library, Turkey
- Ferreira-Mendes Portuguese-American Archives, United States
- Free Library of Philadelphia, United States

Personal affiliates

- Jan Richards, Australia
- Penelope Doulgeris, Austria
- Yensi Vides, El Salvador
- Mette Laustsen, Greenland
- Marisela Castro, Mexico
- Betsaida Velez-Natal, Puerto Rico
- Angelinah Boniface, United States
- Jen Fitzgerald, United States
- Ardis Hanson, United States
- Robert Newlen, United States
- Ann Okerson, United States
- Marion Richards, United States
- Rachel Sher, United States

Student affiliates

- Alejandro Tinoco-Carrillo, Colombia
- Daniel Gordillo-Sánchez, Colombia
- Markus Putnings, Germany
- Mohaddeseh Dokhtesmati, Islamic Republic of Iran
- Jennifer Rivera-Rodriguez, Puerto Rico
- Zena McFadden, United States
- Cletus Kuunifaa, United States
- Talia Earle, United States

Grants and awards

IFLA International Marketing Award 2012

The IFLA Section on Management and Marketing in collaboration with Emerald has the pleasure to announce the IFLA International Marketing Award for 2012.

The IFLA International Marketing Award will honor organizations that have implemented creative, results-oriented marketing projects or campaigns. Three finalists will be recognized for their

outstanding achievements. From these three finalists, the winner will be chosen and receive airfare, lodging and registration for the World Library and Information Congress: 78th IFLA General Conference and Council in Helsinki, Finland in August 2012, as well as a cash award of USD 1,000 which must be used to further the marketing efforts of the recognized organization.

Three finalists will be announced in March 2012. A first place winner will be chosen and two distinctions will be awarded. The winner will be announced officially during the Press Conference of the Congress in Helsinki, Finland.

For applications and application material in seven IFLA languages can be accessed at: http://www.ifla.org/en/node/596
Last date for submission of application: 15th January 2012.

Future IFLA conferences and meetings

IFLA International Newspaper Conference 2012

The IFLA International Newspaper Conference 2012 will take place at the Bibliothèque nationale de France, Grand Auditorium, Quai François Mauriac, Paris, from 11–13 April 2012. Theme: Newspaper Digitization and Preservation: New Prospects. Stakeholders, Practices, Users and Business Models.

The conference is organized by the Bibliothèque nationale de France, the IFLA Newspaper Section and the IFLA PAC Core Activity.

The Conference aims to assess major ongoing mass digitization projects in Europe and throughout the world, undertaken by libraries, archives, newspaper publishers, and content aggregators. In addition to digitization projects, conference topics are: general digitization policies, web harvesting, legal deposit, editorial strategies, issues linked to long-term digital and physical preservation, new devices for access and distribution of digital content, as well as new and old business models.

The Conference will take place during a major exhibition dedicated to the History of Newspapers in France at the BnF.

Conference languages: English and French. Simultaneous translation will be provided.
Further information:
Christiane Baryla, IFLA PAC Director. Email: christiane.baryla@bnf.fr
Frederick Zarndt, Chair, IFLA Newspaper Section. Email: frederick@frederickzarndt.com
Pascal Sanz, Director Department Law, Economics, Politics, BnF. Email: pascal.sanz@bnf.fr

Helsinki satellite meetings

For details of pre- and post-conference satellite meetings for the World Library and Information Congress: 78th IFLA General Conference and Assembly in Helsinki, Finland, 11–16 August 2012, please see the International Calendar section in this issue.

Helsinki 2012

The World Library and Information Congress: 78th IFLA General Conference and Assembly, will take place in Helsinki, Finland from 11–16 August 2012. *Theme:* Libraries Now!–Inspiring, Surprising, Empowering.
Further information: http://conference.ifla.org/ifla78

Poster sessions. Are you involved in an interesting project or in an area of work that you would like to discuss with or show to other congress attendees? Why not present your work in the IFLA Poster Session?

Your topic could be described on a printed poster or by photographs, graphics and pieces of text that you attach to the presentation panel. All IFLA official languages – Arabic, Chinese, English, French, German, Russian and Spanish – are welcome. Presenters of a poster will be expected to be present on Monday 13 and Tuesday 14 August 2012 in order to explain their poster and to hand out any leaflets or other information material they have available for viewers of their poster.

Conference participants interested in presenting a poster session are requested to complete the attached form and send it together with a brief description of not more than 200 words of the poster (we would appreciate receiving a summary in English with your proposal). The deadline is 09 March 2012, after the deadline applications will no longer be accepted. A jury comprised of 2 members of the Professional Committee of IFLA will review all submissions.

The application form can be found at: http://conference.ifla.org/ifla78/call-for-poster-sessions

Please send the completed form and description to: Lidia Putziger Administrative Officer lidia.putziger@ifla.org

Singapore 2013

During the Closing Session in San Juan, Puerto Rico on 18 August, IFLA President Ellen Tise officially announced that Singapore would be the host location for the 2013 World Library and Information Congress, 17–23 August 2013.

From other organizations

UNESCO

In the light of recent events in UNESCO (see below), we reproduce here an item published in IFLA Express during the San Juan conference, which highlights the important and longstanding relationship between IFLA and UNESCO.

IFLA & UNESCO – Important partners. The following is a short interview with Jānis Kārklinš, Assistant Director-General of Communication and Information of UNESCO,

What are the main areas that UNESCO is working with IFLA in at the moment? IFLA is one of UNESCO's strategic partners and we have number of on-going activities: we are cooperating on the preservation of the world's documentary heritage in the framework of the Memory of the World Programme; promoting access to multilingual and multicultural content through the World Digital Library which is a joint UNESCO / US Library of Congress project; promoting media and information literacy and principle of open access to information, as well as collaborating in following up on the decisions of the World Summit on the Information Society (WSIS).

IFLA has agreed to be a co-organizer of an international conference on digital preservation that UNESCO is planning to hold in September 2012. The aim of the conference is to raise awareness of policy makers on digital heritage protection, as well as providing further contributions on practical solutions for digital preservation and digitization policies in the countries around the world. The conference will revisit the Charter on the Preservation of the Digital Heritage which was adopted by UNESCO's General Conference in 2003 and will examine necessary adjustments or changes which should be introduced in the text taking into account the technological advancements of the past 10 years. IFLA's expertise in these issues is indispensable and we count on the close cooperation.

UNESCO has been working with IFLA's Information Literacy Section on the production of Media and Information Literacy indicators. Can you tell us how this work is going? UNESCO together with experts analyzed the specificities and similarities between Information literacy and Media literacy. This analysis showed an overlap of skills in both as well as other types of literacies. The work on Media and Information Literacy (MIL) should be seen as a process towards more inclusive holistic approach which describes the core competencies (skills, attitudes and knowledge) necessary to function successfully in the emerging/ growing knowledge societies.

The Information Literacy Section of IFLA, one of UNESCO's important partners, kindly accepted to review and critically assess the validity of the MIL theoretical and conceptual framework, as well as the MIL methodology. The workshop is scheduled to take place on 11 August and all IFLA information literacy experts are invited to participate.

On 14 July in Istanbul, Turkey, at the International Association for Media and Communication Research (IAMCR) Annual Conference, UNESCO presented the MIL concept and indicators to more than 30 experts from media studies, media education, gender, social anthropology, etc. Although the overall assessment of the concept was positive, comments were made about the need to reinforce elements that ensure freedom of expression and pay more attention to collective competencies. The outcome of the expert discussions in Turkey will be presented during the IFLA experts meeting. I hope that the San Juan meeting will provide information experts' perspective to the concept which will complement and conclude the round of expert consultations on this subject.

It is worth mentioning that UNESCO has developed a comprehensive MIL curriculum for teachers training which was presented during the recent (15–17 June 2011) international conference in Fez, Morocco, and will be piloted in dozen countries around the world.

UNESCO recently hosted a conference on E-books in Italy. What issues came up that libraries should pay attention to? Are E-books a 'game changer'? The conference on e-books which took place earlier this year in Monza reached several important conclusions. The e-book modifies the relationship with the reader and it implies a change that is not only deep but very progressive in the publishing professional profiles. It was also observed that the e-book is not a "book" that has become ''electronic''. It is completely different, being more similar to a license or an authorization limited in time. Discussion has shown that e-books and printed books actually exist side by side, sometimes in a complementary way, and even reinforcing each other.

It was observed that the traditional production and distribution chain evolves and is changing in depth, but it still exists. In other words, we still have authors, publishers, illustrators, translators, editors, distributors, booksellers and librarians; but we also have e-publishers, literary blogs, web illustrators and graphic designers, on demand booksellers, and, of course, new digital tools will be further developed in the production process of traditional printed texts.

In the context of libraries the conference concluded that the digitization of libraries is a point of no return, an irreversible process, which encourages and facilitates their networking. They become more important and have a greater impact on society due to the expansion of their activities and of their publics. Throughout history, libraries have never served as many readers as they do today. But digitalization also implies challenges for libraries: accessibility, data conservation and safeguarding, financing, etc. We need to address these issues in an open and inclusive manner with a view of finding the most rational models for different type of economic environments which would be based on freedom of expression, free access to information, respect for authors' rights and the quality service for customers.

As the online population of the world rises above 2 billion people and Internet access becomes more common, what challenges and opportunities are on the horizon for libraries? Libraries in many countries of the world will remain the hubs of unrestricted access to information, including through the use of new technologies. Internet creates a new paradigm of access to information; access to enormous amount of information has never been so easy. One can speak about a deluge of information which is now accessible on-line and which requires the development of a new set of skills by users. In that respect, the role of libraries and librarians remains important in helping people with their informational needs.

Media and information literacy becomes an increasingly important skill and should be addressed at all levels and stages of education. Life-long learning programmes which are part of library agendas play a crucial role in promoting MIL and facilitating readers' ability to navigate in the ocean of information.

Libraries work in bridging the digital divide and democratize access to a variety of content. They are confronted with the challenge of developing new skills as well as (re)defining the professional profile of information managers. All librarians need to be well trained themselves and must be able to provide necessary information services to the customers, including those with special needs, people with disabilities, socially marginalized people.

Source: http://express.ifla.org/node/2825

UNESCO membership for Palestine. On 31 October 2011, the 36th Session of the UNESCO General Conference voted overwhelmingly to admit Palestine to membership of the organization. Of 173 countries voting, 107 were in favour, 14 opposed and 52 abstained. In response, the United States government announced that it will cut US funding to UNESCO. A US state department spokeswoman said a payment of some US$60m (GB£37m) due next month would not be made. US membership dues provide around 20 percent of UNESCO's budget. For its membership to take effect, Palestine must sign and ratify UNESCO's Constitution.

Sources: UNESCOPRESS and http://www.bbc.co.uk/news/world-middle-east-15527534

Statement by UNESCO Director-General. Ms Irina Bokova, Director-General of UNESCO Irina Bokova, made the following statement to the General Conference regarding the admission of Palestine to UNESCO:

> Ladies and Gentlemen, The admission of a new Member State is a mark of respect and confidence.
>
> This must be an opportunity to strengthen the Organization and not weaken it, a chance for all to commit once again to the values we share and not to be divided.
>
> Let me be frank. As Director-General, it is my responsibility to say that I am concerned by the potential challenges that may arise to the universality and financial stability of the Organization.
>
> I am worried we may confront a situation that could erode UNESCO as a universal platform for dialogue. I am worried for the stability of its budget.
>
> It is well-known that funding from our largest contributor, the United States, may be jeopardized.
>
> I believe it is the responsibility of all of us to make sure that UNESCO does not suffer unduly as a result.
>
> I am thinking of those thousands of girls and women in Afghanistan, in Africa and around the world, who have learned to read and write, with the help of UNESCO.
>
> I have in mind Khalida, a young Afghan woman from the Paktika Province, enrolled in a UNESCO training course, who said [I quote]:
>
> *"My family was hesitant at first about me joining this programme. But I have learned many new techniques and realized that, as an Afghan woman, I can work together with men and service my community."*
>
> Khalida benefits from UNESCO's work to enhance literacy in Afghanistan.
>
> I am thinking about the illiterate policemen in Kabul, in Kandahar and other cities, who are learning to read and write to better protect their citizens, thanks to us.
>
> I am thinking of the Iraqi education satellite channel that supports learning to Iraqi girls and boys, including refugees and internally displaced persons.
>
> I am thinking of the hundreds of journalists around the world who are at this very moment harassed, killed or imprisoned, because they stand by the truth – UNESCO stands by them and speaks out for them.

I am thinking also about the stolen treasure of Benghazi, Libya, for which UNESCO was first to ring the alarm bell.

I am thinking of the millions of lives that may be saved by the Tsunami warning system we launched in the Indian Ocean on 12 October, in response to the 2004 natural disaster.

At this time, I know these thoughts are also on your mind.

The fabric of our societies can be easily torn and is long to mend. I am saddened by the possible loss of momentum and energy in UNESCO.

I cannot imagine we would let these women and men down. UNESCO's work is too important to be jeopardized.

Our Organization was created sixty six years ago to ensure that education, the sciences, culture and communication bring people together and foster a culture of peace.

This is our role as a specialized agency of the United Nations.

We are committed to taking our vital mandate forward. I appeal to you all to upkeep UNESCO's ability to act.

In welcoming once again Palestine to the UNESCO family, let me state clearly that we need each and every member of this Organization to be fully engaged.

Source: UNESCOPRESS: http://unesdoc.unesco.org/images/0021/002136/213660E.pdf

UNESCO membership for South Sudan. The Republic of South Sudan was formally admitted to membership of UNESCO on 27 October 2011 as the organization's 194th Member State. A news item on the General Conference website notes that

> According to UNESCO's Education for All Global Monitoring Report, launched in Juba in June 2011, more than one million children of primary-school age do not attend school. This represents almost half of the children in this age group. The country also has the lowest enrollment rate in the world for secondary education and only eight percent of women know how to read and write.

Source: http://www.unesco.org/new/en/general-conference/single-view/news/south_sudan_becomes_unescos_194th_member_state/

International calendar

International Federation of
Library Associations and Institutions
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2012

23–25 January. Amsterdam, The Netherlands.
20th BOBCATSSS Symposium. *Theme:* Information in e-motion.
Further information: http://www.bobcatsss2012.org/

8–9 February 2012. Bulawayo, Zimbabwe.
Regional School Library Seminar. *Theme:* School libraries in Africa in the 21st century: learning from each other.
Further information: zimlanec@gmail.com

22 March 2012. Düsseldorf, Germany
DGI–Conference 2012 – European Afternoon. Social Media and Web Science: The Web as a Living Space.
Co-located with the 2nd DGI-Conference and 64th Annual Meeting, 22 and 23 March 2012.
Further information: Nadja Strein, Deutsche Gesellschaft für Informationswissenschaft und Informationspraxis e.V. (DGI) / German Society of Information Science and Information Practice, Windmühlstraße 3, 60329 Frankfurt am Main, Germany. Fon +49 (0)69 430313. Fax +49 (0)69 4909096. Email: mail@dgi-info.de Website: www.dgi-info.de

11–13 April 2012. Paris, France.
IFLA International Newspaper Conference 2012. *Theme:* Newspaper digitization and preservation: New prospects. Stakeholders, practices, users and business models.
Further information: Frederick Zarndt, Chair, IFLA Newspaper Section: frederick@frederickzarndt.com

16–19 May 2012. Vancouver, BC, Canada.
5th International Conference of Institutes and Libraries for Chinese Overseas Studies. *Theme:* Chinese through the Americas.
Further information: http://wcilcos.library.ubc.ca/

21–23 May 2012. Johannesburg, South Africa.
Third IAALD Africa Chapter Conference. *Theme:* e-Agriculture for improved livelihoods and food security in Africa.
Further information: http://www.iaald-africa.org/conferences/iaald_africa_2012_conference.pdf.

22–25 May 2012, Limerick, Ireland.
4th Qualitative and Quantitative Methods in Libraries International Conference (QQML2012),
Further information: secretariat@isast.org

26–29 May 2012. Xi'an, China.
CWCN-S 2012: 2012 Spring International Conference on Wireless Communications and Networks.
Contact: Secretary: Ms. Wang. Tel: +86-151 7233 0844. Email: scet@engii.org. Website: http://www.engii.org/scet2012/CWCN2012.aspx

31 May–2 June 2012. Waterloo, Ontario, Canada.
2012 Canadian Association for Information Science (CAIS-ACSI) Conference/congrès.
Further information: http://www.cais-acsi.ca/index.htm.

18–22 June 2012. Zadar, Croatia.
Libraries in the Digital Age (LIDA) 2012.
Further information: website: http://ozk.unizd.hr/lida Email: lida@unizd.hr

1–3 August 2012. Düsseldorf, Germany
COSCI12: International Conference on Science and the Internet.
Further information: Alexander Tokar. Email: tokar@phil-fak.uni-duesseldorf.de Website: http://www.nfgwin.uni-duesseldorf.de/de/cosci12

7-9 August 2012. Mikkeli, Finland.
The Electronic Re-Evolution ... News Media in the Digital Age. IFLA Preconference.
Organized by: IFLA Newspapers Section, IFLA Preservation and Conservation Section, IFLA PAC and the IFLA Genealogy and Local History Section.
Further information: http://www.ifla.org/files/newspapers/Call_for_Papers/Satellite%20preconference%20Newspaper%20and%20other%20Sections%202012.pdf

8–10 August 2012. Tampere, Finland.
The Road to Information Literacy: Librarians as Facilitators of Learning. IFLA Satellite Meeting.
Organized by: Continuing Professional Development and Workplace Learning and Information Literacy Sections.
Further information: http://www.ifla.org/en/news/call-for-proposals-ifla-satelite-meeting-2012-the-road-to-information-literacy-librarians-as-fa

9 August 2012. Turku, Finland.
Library's Efficiency, Impact and Outcomes: Statistical Evaluation and Other Methods as Tools for Management and Decision-Making. IFLA Satellite Pre-conference.
Organized by: IFLA Statistics and Evaluation Section, IFLA Management and Marketing Section and IFLA Academic and Research Libraries Section.
Further information: Markku Laitinen. Email: markku.laitinen@helsinki.fi

9–10 August 2012. Hämeenlinna, Finland.
IFLAcamp. IFLA satellite unconference.
Organized by New Professionals Special Interest Group.
Further information: http://npsig.wordpress.com/iflacamp/

11–16 August 2012. Helsinki, Finland.
IFLA World Library and Information Congress: 78th IFLA General Conference and Council.
Theme: Libraries Now! – Inspiring, Surprising, Empowering.
Further information: http://conference.ifla.org/ifla78

2012–2015

2012 Canada; 2013 Denmark, Århus; 2014 Austria, Vienna; 2015 USA, New York
International Association of Music Libraries, Archives and Documentation Centres (IAML).
Further information: http://www.iaml.info/en/activities/conferences or email Roger Flury, AML Secretary General at: roger.flury@natlib.govt.nz

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Abstracts

Sommaires

'As for the future, your task is not to foresee it, but to enable it.' [« Pour ce qui est de l'avenir, votre tâche n'est pas de le prédire, mais de le rendre possible. »]
Derek Law
IFLA Journal 37 (2011) No. 4 pp. 269–275

Les bibliothèques courent le risque de devenir obsolètes si elles ne sont pas capables de développer une nouvelle philosophie adaptée aux exigences de l'ère numérique et démontrant leur utilité. Nous devons identifier la niche qui différentie ce que nous avons à offrir, notre argument de vente unique qui signifie que nous ne sommes pas en concurrence avec Google ou Microsoft. Une telle philosophie permettra ensuite de déterminer la façon d'aborder les utilisateurs, les services, le contenu et nos propres compétences. Le monde est de plus en plus peuplé d'individus qui apprennent différemment et pour lesquels la lecture et l'écriture telles que les comprenaient les générations passées deviennent des choix optionnels de styles de vie et non une exigence normale de l'individu intelligent. Nous devons fournir des services et des collections qui correspondent à leurs besoins plutôt que d'attendre d'eux qu'ils changent pour correspondre à nos préconceptions.

65+: Engaging underserved patrons - a success story! [65+: Attirer les clients les moins bien représentés – le récit d'un succès !]
Jasmina Ninkov and Vesna Vuksan
IFLA Journal 37 (2011) No. 4 pp. 276–279

La Bibliothèque municipale de Belgrade (BMB) est le plus grand système bibliothécaire public d'Europe du Sud-Est, avec 275 employés répartis sur 70 sites dans toute la ville de Belgrade. À l'origine, l'idée de cette étude est née du souhait de la BMB d'identifier les groupes qui n'utilisaient pas les services de la bibliothèque et d'en déterminer les raisons. Par ailleurs, cette idée a été inspirée par les pratiques d'excellence du secteur public de la ville de Belgrade. Fin 2009, la BMB a mené une étude de marché avec les objectifs suivants: identifier les groupes de non-utilisateurs; attirer le plus grand groupe de personnes les moins bien représentées; développer des services pour répondre à leurs besoins. Le fait de mener des recherches appliquées dans un environnement bibliothécaire est un travail considérable. Commencer en se fixant des objectifs clairs et avec un plan bien conçu augmente grandement les chances que l'étude se passe sans encombre et fournisse des informations véritablement utiles. Comme nous avons pu nous en rendre compte, les informations précises obtenues grâce à cette étude entraînent des avantages considérables. Nous pensons qu'une communication active avec nos clients et membres potentiels par le biais de différents canaux, y compris recherche appliquée et collecte de données, doit permettre de mettre en place un réseau bibliothécaire qui contribuera à son tour à édifier une meilleure communauté.

Key skills and competencies of a new generation of LIS professionals [Qualifications et compétences essentielles d'une nouvelle génération de professionnels des sciences de l'information et des bibliothèques]
Pussadee Nonthacumjane
IFLA Journal 37 (2011) No. 4 pp. 280–288

Cet article présente les qualifications et compétences essentielles d'une nouvelle génération de professionnels des sciences de l'information et des bibliothèques (SIB). Premièrement, il présente l'ère numérique et son impact sur les changements qui se produisent dans les bibliothèques. Deuxièmement, il examine des documents sur les qualifications et compétences des professionnels des SIB travaillant à l'ère numérique et des recherches apparentées. Troisièmement, il décrit la méthodologie de cette étude et les qualifications et compétences essentielles d'une nouvelle génération de professionnels des SIB qui peuvent être classées comme compétences personnelles, compétences génériques et connaissances spécifiques à la discipline. Enfin, il présente une image de la nouvelle génération de professionnels des SIB.

Finding film resources: Challenges of formats, policies and intranets [Trouver des ressources filmiques: les défis en matière de formats, politiques et réseaux intranet]
Michelle Emanuel
IFLA Journal 37 (2011) No. 4 pp. 289–295

Les programmes d'études culturelles interdisciplinaires gagnant en importance en Amérique du Nord, de nombreux étudiants formés en sciences humaines sont attirés par l'étude des films depuis une perspective similaire. Trouver du matériel source telles que des copies de films de référence et des ressources érudites appropriées est rendu compliqué par les politiques de prêt des bibliothèques qui ne s'étendent pas aux médias, ou par le fait que des films étrangers sont proposés sur des formats autres que ceux rassemblés par une certaine institution bibliothécaire. Cet article examine les problèmes qui se posent aux clients recherchant des films et rapporte des expériences personnelles dans divers instituts de recherche à Los Angeles et à Paris. Il contient aussi des conseils et des idées à l'intention du chercheur potentiel écrivant sur des films dans un but académique.

Methodologies for multilingual information integration in the domain of Chinese art

[Méthodologies pour une intégration des informations multilingues dans le domaine de l'art chinois]
Shu-jiun Chen, Ching-ju Cheng and Hsueh-hua Chen
IFLA Journal 37 (2011) No. 4 pp. 296–304

Dans cet article, nous rendons compte de méthodologies par l'intermédiaire de deux projets multilingues de recherche. Nous discutons du cadre méthodologique proposé pour l'interopérabilité anglo-chinoise entre les thésaurus respectifs, y compris quatre modules principaux: Traduction, Mappage, Localisation et Création. Nous abordons aussi les quatre étapes nécessaires pour élaborer les métadonnées anglaises: Mappage, Sélection, Traduction et Vocabulaire de contrôle. De plus, l'article considère également les principaux problèmes qui se posent dans le cadre des deux projets, y compris les différents degrés d'équivalence sémantique entre les termes chinois et anglais, la traduction des métadonnées et la qualité des métadonnées.

UDC on the Internet: Theory and project in evolution for use of indexing and retrieval systems [Classification décimale universelle sur Internet: théorie et projet en développement pour l'utilisation de systèmes d'indexation et d'extraction]
Mariàngels Granados Colillas
IFLA Journal 37 (2011) No. 4 pp. 305–313

Le point de départ de cet article est de comparer les caractéristiques de la classification à facettes et des ontologies avec une réévaluation de la classification décimale universelle (CDU) en tant que système de classification analytico-synthétique. Par conséquent, nous proposons une théorie déjà utilisée comme base d'un projet dans les années 1980 mais qui va représenter un progrès dans le domaine de l'extraction d'informations dans le contexte futur d'Internet. Cette théorie est basée sur l'usage post-coordonné de LCSH (Library of Congress Subject Headings ou vedettes-matières de la Bibliothèque du Congrès) et la mise en place de leur équivalence en utilisant la CDU pour l'indexation. Le processus de récupération est basé sur la génération de clusters caractéristiques du forage de données et le fait de relier des vocabulaires contrôlés existants et des langages libres dans toutes les langues avec les notations CDU correspondantes. On y parviendra en rendant la CDU compatible avec les classifications existantes, profitant ainsi de toutes les connaissances structurées jusqu'ici, grâce à la création d'un format approprié.

UNIMARC and linked data [UNIMARC et linked data (ou Web de données)]
Gordon Dunsire and Mirna Willer
IFLA Journal 37 (2011) No. 4 pp. 314–326

Le principal objectif de cet article est de présenter des arguments et de faire des recommandations en faveur de l'utilisation des formats UNIMARC pour les notices bibliographiques et vedettes d'autorité en RDF (Resource Description Framework ou Cadre de référence pour la description de ressources), la norme W3C servant à structurer les données dans l'environnement du Web sémantique et Web de données. Il s'agit d'une continuation des travaux déjà entrepris par les groupes respectifs de l'IFLA pour représenter la description bibliographique internationale normalisée et les modèles conceptuels Spécifications fonctionnelles des notices bibliographiques, Spécifications fonctionnelles des notices d'autorité et Spécifications fonctionnelles des données d'autorité pour les vedettes-matières. Les auteurs recommandent instamment que le Comité permanent UNIMARC propose à l'IFLA le financement du développement de la représentation d'UNIMARC en RDF comme projet de recherche et développement.

Zusammenfassungen

'As for the future, your task is not to foresee it, but to enable it.' ['Was die Zukunft anbelangt, so haben wir nicht die Aufgabe, sie vorherzusehen, sondern sie zu ermöglichen.']
Derek Law
IFLA Journal 37 (2011) No. 4 pp. 269–275

Büchereien laufen die Gefahr der Überalterung, sofern sie nicht eine digital relevante neue Philosophie in Bezug auf ihre Zielsetzungen entwickeln können. Wir müssen die Nische finden, die unterstreicht, was wir anzubieten haben, das Alleinstellungsmerkmal (Unique Selling Point), das bedeutet, dass wir nicht mit Google oder Microsoft konkurrieren. Eine solche Philosophie bestimmt dann auch die Vorgehensweise in Bezug auf die Nutzer, die Serviceleistungen, den Inhalt und unsere eigenen Fähigkeiten. Es gibt immer mehr Menschen mit einer andersartigen Literalität auf der Welt, für die das Lesen und Schreiben eine andere Bedeutung hat als für unsere Vorfahren, wobei es heute vielfach zu einer optionalen Lifestyle-Entscheidung wird und nicht mehr als übliche Voraussetzung für intelligente Menschen gilt. Daher müssen wir Serviceleistungen und Sammlungen anbieten, die den Bedürfnissen dieser Menschen entsprechen und dürfen nicht von ihnen erwarten, dass sie sich ändern, um sich unserer vorgefassten Meinung anzupassen.

65+: Engaging underserved patrons - a success story! [Die Einschaltung unterversorgter Besucher - eine Erfolgsgeschichte!]
Jasmina Ninkov und Vesna Vuksan
IFLA Journal 37 (2011) No. 4 pp. 276–279

Die Belgrade City Library (BCL) ist das größte öffentliche Bibliothekssystem in Südosteuropa, beschäftigt 275 Mitarbeiter und ist an mehr als 70 Standorten im gesamten Stadtgebiet von Belgrad vertreten. Die Idee, hier auch Forschungsprojekte durchzuführen, entstammte ursprünglich dem Wunsch der BCL, Gruppen zu identifizieren, die die Bibliothek nicht nutzen; wobei auch die Gründe dafür ermittelt werden sollten. Andererseits ergab sich diese Inspiration aus der guten fachlichen Praxis des öffentlichen Sektors der Stadt Belgrad. Ende 2009 hat die BCL eine Marktstudie mit dem Ziel durchgeführt, Nichtnutzergruppen zu identifizieren, die größte unterversorgte Gruppe einzuschalten und Serviceleistungen zu entwickeln, die den Bedürfnissen dieser Gruppe gerecht werden. Die Durchführung angewandter Forschungsprojekte in einer Bibliotheksumgebung ist sehr arbeitsintensiv. Wenn man mit deutlich formulierten Zielsetzungen und einem guten Plan anfängt, erhöht sich damit die Wahrscheinlichkeit sehr erheblich, dass die spätere Auswertung reibungslos verläuft und auch wirklich brauchbare Informationen ergibt. Wie wir feststellen konnten, bringen Forschungsprojekte, die präzise Informationen liefern, erhebliche Vorteile mit sich. Wir sind davon überzeugt, dass die aktive Kommunikation mit unseren Besuchern und den potenziellen Mitgliedern über verschiedene Kanäle – was auch die angewandte Forschung und die effiziente Datenerfassung beinhaltet – dazu beiträgt, ein Bibliotheksnetzwerk aufzubauen, das wiederum eine bessere Community nach sich ziehen kann.

Key skills and competencies of a new generation of LIS professionals [Schlüsselqualifikationen und Kompetenzen einer neuen Generation von LIS-Spezialisten]
Pussadee Nonthacumjane
IFLA Journal 37 (2011) No. 4 pp. 280–288

Dieser Beitrag befasst sich mit den Schlüsselqualifikationen und Kompetenzen einer neuen Generation von LIS-Spezialisten. Zunächst wird einleitend der Hintergrund des digitalen Zeitalters beleuchtet, was auch entsprechende Veränderungen in den Büchereien bewirkt. Zweitens folgt eine Besprechung der vorhandenen Literatur im Zusammenhang mit den Qualifikationen und dem Wissen der LIS-Spezialisten im digitalen Zeitalter sowie der damit verbundenen Forschungsprojekte. Drittens beschreibt dieser Artikel die Methodik dieser Studie sowie die Schlüsselqualifikationen und Kompetenzen einer neuen Generation von LIS-Spezialisten, die sich auch weiter aufschlüsseln lassen, wobei dann Persönlichkeitskompetenzen, allgemeine Kompetenzen und fachspezifisches Wissen eine Rolle spielen. Abschließend zeigt dieser Beitrag das Profil der neuen Generation von LIS-Spezialisten auf.

Finding film resources: Challenges of formats, policies and intranets [Abrufen von Filmressourcen: Herausforderungen in Bezug auf die Formate, Strategien und Intranets]
Michelle Emanuel
IFLA Journal 37 (2011) No. 4 pp. 289–295

Mit der zunehmenden Verbreitung von fachübergreifenden kulturwissenschaftlichen Programmen in Nordamerika haben viele Geisteswissenschaftler Interesse daran gefunden, Filme aus einer ähnlichen Perspektive zu betrachten. Das Auffinden von Quellenmaterialien, wie beispielsweise Kopien von Canon-Filmen und geeigneter wissenschaftlicher

Quellen wird jedoch von den Ausleihverfahren der Bibliotheken erschwert, die sich nicht auf Medienprodukte beziehungsweise auf ausländische Filme mit anderen Formaten beziehen als denen, die vom eigenen Institut gesammelt werden. Dieser Artikel untersucht derartige Problemkreise für Besucher, die nach Filmen suchen, und beschreibt auch persönliche Erfahrungen bei diversen Forschungsinstituten in Los Angeles und Paris. Zudem enthält dieser Beitrag auch Empfehlungen und Hinweise für potenzielle Forscher, die sich im akademischen Rahmen mit Filmen befassen.

Methodologies for multilingual information integration in the domain of Chinese art [Verfahren zur mehrsprachigen Informationsintegration im Bereich der chinesischen Kunst]
Shu-jiun Chen, Ching-ju Cheng und Hsueh-hua Chen
IFLA Journal 37 (2011) No. 4 pp. 296–304

In diesem Beitrag geht es um die Methoden im Zusammenhang mit den beiden mehrsprachigen Forschungsprojekten. Wir besprechen einen Vorschlag bezüglich eines methodischen Rahmens für die chinesisch-englische Interoperabilität der jeweiligen Thesauren mit vier Hauptmodulen: Translation, Mapping, Localisation und Creation. Außerdem zeigen wir die vier Schritte bei der Erstellung von englischen Metadaten auf: Mapping, Selection, Translation und Control Vocabulary. Darüber hinaus befasst sich diese Publikation auch mit Schwerpunktthemen im Zusammenhang mit den beiden Projekten, einschließlich der unterschiedlich ausgeprägten semantischen Äquivalenz chinesischer und englischer Begriffe, der Übersetzung von Metadaten sowie der Qualität der Metadaten.

UDC on the Internet: Theory and project in evolution for use of indexing and retrieval systems [UDC im Internet: Entwicklungslinie von Theorie und Projekt zur Nutzung von Indexierungs- und Abfragesystemen]
Mariàngels Granados Colillas
IFLA Journal 37 (2011) No. 4 pp. 305–313

Ausgangspunkt dieses Artikels ist ein Vergleich der Eigenschaften von Facettenklassifikationen und Ontologien mit einer Neubewertung der Universal Decimal Classification UDC (der Universellen Dezimalklassifikation) als ein analytisch-synthetisches Klassifikationssystem. Daher stellen wir hier eine Theorie vor, die als Grundlage eines Projekts in den 1980er Jahren diente, heute jedoch einen Fortschritt im Bereich des Information Retrieval (des Informationsabrufs) im zukünftigen Kontext des Internets darstellt. Diese Theorie stützt sich auf die Nutzung der LCSH (Library of Congress Subject Headings) im Rahmen der Postkoordination und die Einrichtung von deren UDC-Äquivalent zur Indexierung. Die Erschließung (Retrieval) basiert auf der Erzeugung von Clustern, was für das Data Mining typisch ist, sowie der Verlinkung bestehender kontrollierter Vokabulare und freier Sprache in allen Sprachen mit den entsprechenden UDC-Notationen. Dazu soll die UDC zu den bestehenden Klassifikationen kompatibel gemacht werden und somit dank der Schaffung eines geeigneten Formats von dem gesamten bisher strukturierten Wissen profitieren.

UNIMARC and linked data [UNIMARC und verlinkte Daten]
Gordon Dunsire und Mirna Willer
IFLA Journal 37 (2011) No. 4 pp. 314–326

Dieser Beitrag zielt im Wesentlichen darauf ab, Argumente für und Empfehlungen zur

Beschreibung von UNIMARC-Formaten für bibliographische Daten und Normdaten im RDF, dem Resource Description Framework (System zur Beschreibung von Ressourcen), dem W3C-Standard zur Strukturierung von Daten im Semantic Web und in der Linked Data – Umgebung zu präsentieren. Dabei handelt es sich um eine Fortführung der Arbeiten, die bereits von den jeweiligen IFLA-Gruppen bei der Darstellung der "International Standard Bibliographic Description" (der Internationalen Standardisierten Bibliographischen Beschreibung) sowie der konzeptionellen Modelle im Rahmen der "Functional Requirements for Bibliographic Records" (eines bibliothekswissenschaftlichen Datenmodells für bibliographische Metadaten), der "Functional Requirements for Authority Data" (der funktionalen Anforderungen an Normdaten) sowie der "Functional Requirements for Subject Authority Data" (der funktionalen Anforderungen in Bezug auf Normdaten für die Sacherschließung) begonnen wurden. Die Autoren befürworten stark, dass der ständige UNIMARC-Ausschuss der IFLA die finanzielle Förderung der Entwicklung der UNIMARC-Beschreibung in RDF als Forschungs- und Entwicklungsprojekt vorschlagen sollte.

Resúmenes

'As for the future, your task is not to foresee it, but to enable it.' [«En cuanto al futuro, su tarea no es preverlo, sino facilitarlo».]
Derek Law
IFLA Journal 37 (2011) No. 4 pp. 269–275

Las bibliotecas corren el riesgo de quedarse obsoletas a menos que puedan desarrollar una nueva filosofía digitalmente relevante sobre su función. Necesitamos identificar el nicho que diferencia nuestra oferta, un punto de venta exclusivo que nos evite competir con Google o Microsoft. Este tipo de filosofía determinará después el enfoque para con los usuarios, los servicios, el contenido y nuestro bagaje de habilidades. Cada vez hay más personas con distintos niveles culturales para quienes leer y escribir como lo hacían las antiguas generaciones se está convirtiendo en una elección estrictamente personal y no en una obligación «para personas inteligentes». Debemos proporcionarles servicios y fondos que se ajusten a sus necesidades, en lugar de esperar que cambien y se adapten ellos a nuestras ideas preconcebidas.

65+: Engaging underserved patrons - a success story! [65+: La captación de usuarios desatendidos, ¡todo un éxito!]
Jasmina Ninkov y Vesna Vuksan
IFLA Journal 37 (2011) No. 4 pp. 276–279

La Biblioteca Municipal de Belgrado (BMB) es la mayor institución bibliotecaria pública del sudeste de Europa, con 275 empleados y 70 centros repartidos en todo el municipio. La idea de realizar una investigación surgió a raíz del interés de la BMB por identificar aquellos grupos que no utilizan la biblioteca y determinar las razones. Para ello se inspiraron en las mejores prácticas del sector público del municipio de Belgrado. A finales de 2009, la BMB realizó un estudio de mercado con los siguientes objetivos: identificar grupos de no usuarios; captar al grupo desatendido más amplio; y desarrollar servicios que cubran sus necesidades. La realización de estudios aplicados en el ámbito bibliotecario requiere mucho trabajo; comenzar con objetivos claros y una buena planificación aumenta considerablemente las probabilidades de que el estudio sea eficaz y aporte información verdaderamente útil. Como hemos podido constatar, la información precisa recabada gracias a este estudio ha reportado enormes ventajas. Creemos que la comunicación activa con los usuarios, tanto actuales como potenciales, a través de distintos canales, incluyendo los estudios aplicados y la recogida de información efectiva, ayudaría a crear una red de bibliotecas que pueda, a su vez, construir una comunidad mejor.

Key skills and competencies of a new generation of LIS professionals [Principales capacidades y competencias de la nueva generación de profesionales de la biblioteconomía e información]
Pussadee Nonthacumjane
IFLA Journal 37 (2011) No. 4 pp. 280–288

En este trabajo se presentan las principales capacidades y competencias de la nueva generación de profesionales de la biblioteconomía e información. En primer lugar, se ofrece una introducción de la era digital y su repercusión en los cambios que están teniendo lugar en las bibliotecas. A continuación, se repasa la bibliografía en materia de habilidades y conocimientos de los profesionales de la biblioteconomía e información que trabajan en la era digital, así como otros estudios relacionados. En tercer lugar, se describe la metodología del presente estudio y las principales capacidades y competencias de la nueva generación de profesionales de la biblioteconomía e información, que pueden clasificarse en tres: habilidades personales, capacidades generales y conocimientos específicos de la disciplina. Para terminar, se presenta la nueva generación de profesionales de la biblioteconomía e información.

Finding film resources: Challenges of formats, policies and intranets [Encontrar recursos cinematográficos: dificultades que plantean los formatos, las políticas y las intranets]
Michelle Emanuel
IFLA Journal 37 (2011) No. 4 pp. 289–295

A medida que los estudios culturales interdisciplinares ganan peso en América del Norte, muchos eruditos de humanidades se sienten atraídos por el estudio cinematográfico desde una perspectiva similar. Encontrar materiales fuente, como copias de películas autorizadas y recursos académicos apropiados, se complica por las políticas de préstamos de las bibliotecas —que no prestan productos multimedia— o por la existencia de películas extranjeras con formatos distintos a los utilizados por la propia institución. En este artículo se analiza este problema experimentado por los usuarios interesados en la cinematografía y se recogen experiencias personales en varias instituciones de investigación, tanto de Los Ángeles como de París; se incluye asimismo una serie de consejos e información para el investigador que debe escribir sobre películas con fines académicos.

Methodologies for multilingual information integration in the domain of Chinese art [Metodología para la integración de la información multilingüe en el ámbito del arte chino]
Shu-jiun Chen, Ching-ju Cheng y Hsueh-hua Chen
IFLA Journal 37 (2011) No. 4 pp. 296–304

En este trabajo se da cuenta de las metodologías utilizadas en dos proyectos de investigación multilingüe. Abordamos el marco metodológico propuesto para conseguir la interoperabilidad entre los idiomas chino e inglés y entre sus tesauros respectivos, incluyendo cuatro módulos principales: Traducción, Trazado, Localización y Creación. También nos centramos en las cuatro fases necesarias para crear metadatos en inglés: Trazado, Selección, Traducción y Vocabulario de control. En el trabajo se analizan además los principales problemas que afrontan los dos proyectos, como los distintos grados de equivalencia semántica entre los términos chinos e ingleses y la traducción y calidad de los metadatos.

UDC on the Internet: Theory and project in evolution for use of indexing and retrieval systems [CDU en internet: teoría y proyectos sobre la evolución del uso de los sistemas de indexación y recuperación]
Mariàngels Granados Colillas
IFLA Journal 37 (2011) No. 4 pp. 305–313

El punto de partida de este artículo es una comparación de las características de la clasificación con facetas y ontologías con la reevaluación de la CDU (Clasificación Decimal Universal) como sistema de clasificación analítico-sintética. Lo que proponemos, por tanto, es una teoría que se utilizó como base de un proyecto en los años 80, pero que supondría un avance en el campo de la recuperación de información en el internet del futuro. Esta teoría se basa en el uso postcoordinado de la LCSH (*Library of Congress Subject Headings*) y en la creación de su equivalencia con la CDU para la indexación. El proceso de recuperación se basa en la generación de las agrupaciones (o *clusters*) características del análisis de datos y en el enlace de los vocabularios controlados existentes y del lenguaje libre en todos los idiomas, con las correspondientes notaciones de la CDU. Para lograrlo, se hará la CDU compatible con las clasificaciones existentes, lo que permitirá aprovechar todo el conocimiento estructurado hasta ahora gracias a la creación de un formato apto.

UNIMARC and linked data [UNIMARC y datos enlazados]
Gordon Dunsire y Mirna Willer
IFLA Journal 37 (2011) No. 4 pp. 314–326

El presente trabajo tiene como objetivo presentar recomendaciones y argumentos a favor de la representación de los formatos UNIMARC para los datos bibliográficos y de autoridades en RDF (*Resource Description Framework*), el estándar de la W3C para la estructuración de datos en entornos de web semántica y datos enlazados. Se trata de la continuación de un trabajo ya iniciado por los grupos respectivos de IFLA sobre la representación de la Descripción Bibliográfica Estándar Internacional y los modelos conceptuales de los siguientes requisitos: Requisitos funcionales para registros bibliográficos, Requisitos funcionales para datos de autoridades y Requisitos funcionales para datos temáticos de autoridades. Los autores recomiendan encarecidamente que el Comité permanente de UNIMARC proponga a IFLA financiar la representación de UNIMARC en RDF en forma de un proyecto de investigación y desarrollo.

Рефераты статей

‘As for the future, your task is not to foresee it, but to enable it.’ [«А что касается будущего, так ваша задача не в том, чтобы его предвидеть, а в том, чтобы его воплотить».]
Дерек Ло
IFLA Journal 37 (2011) No. 4 pp. 269–275

Библиотеки рискуют впасть в забвение, если не смогут разработать новую, соответствующую духу эры цифровых технологий, философию смысла своего существования. Нам необходимо определить ту нишу, которая покажет неповторимость наших услуг, выразит уникальный коммерческий довод, что мы не пытаемся конкурировать с такими кампаниями, как Google и Microsoft. Такая философия затем определит наш подход к читателю, услугам, информационному наполнению, а также к нашим собственным навыкам и умениям. В мире все больше людей с неординарным стандартом грамотности, для которых читать и писать в тех традициях, которые для прошлых поколений считались непреложными, уже становится одним из способов самовыражения, а не обычным требованием к образованному человеку. Мы скорее должны оказывать услуги и подбирать материалы, соответствующие их запросам, нежели ожидать, что они изменятся в соответствии с нашими предубеждениями.

65+: Engaging underserved patrons - a success story! [65+: Привлекаем неохваченных клиентов – рассказ со счастливым концом!]
Ясмина Нинков и Весна Вуксан
IFLA Journal 37 (2011) No. 4 pp. 276–279

Библиотека города Белграда (БГБ) является крупнейшей библиотечной системой в юго-восточной Европе, которая включает 275 сотрудников и сеть из 70-ти заведений по всему Белграду. Идея провести исследование явилась плодом желания БГБ определить группы населения, которые не пользуются услугами библиотеки, и понять причины такого поведения. С другой стороны, толчком послужила передовая практика государственного сектора Белграда. В конце 2009-го года БГБ провела маркетинговое исследование, целью которого являлись: определение групп жителей, которые не пользуются услугами БГБ; привлечение самой большой из неохваченных групп; создание услуг, соответствующих их требованиям. Проведение прикладного исследования в библиотечной среде требует немалого труда. Если начинать его, имея четкие цели и хороший план, существенно увеличивается вероятность того, что оценка пройдет без сучка и задоринки, и позволит получить поистине ценную информацию. Как нам довелось увидеть, достоверная информация, полученная в результате исследования, несет в себе массу преимуществ. Мы считаем, что активное общение как с существующими клиентами, так и с нашими потенциальными членами при помощи различных способов, включая такие, как прикладное исследование и эффективный сбор информации, помогут создать библиотечную сеть, которая, в свою очередь, позволит улучшить наше общество.

Key skills and competencies of a new generation of LIS professionals [Ключевые практические навыки и профессиональные качества нового поколения профессионалов библиотековедения]
Пуссаде Нонтакумьяне
IFLA Journal 37 (2011) No. 4 pp. 280–288

В этом документе описаны ключевые практические навыки и профессиональные качества нового поколения профессионалов библиотековедения. В первую очередь, он содержит вводную информацию об эре цифровых технологий, которая оказывает непосредственное влияние на те перемены, которые происходят в библиотечном мире. Во-вторых он знакомит нас с обзором литературы, касающейся знаний и практических навыков профессионалов библиотековедения, работающих в эру цифровых технологий, и с соответствующими исследованиями. В-третьих, в нем описана методология данного исследования и перечислены ключевые практические навыки и профессиональные качества нового поколения профессионалов библиотековедения, которые можно классифицировать как личные навыки, общие навыки и специальные знания. И, наконец, он рисует нам образ профессионалов библиотековедения нового поколения.

Finding film resources: Challenges of formats, policies and intranets [В поисках киноматериалов: решение проблемы форматов, правил и внутренних сетей]
Мишель Эмануэль
IFLA Journal 37 (2011) No. 4 pp. 289–295

По мере того, как в Северной Америке нарастает преобладание программ междисциплинарных культурологических исследований, большому количеству студентов-гуманитариев приходится изучать кино, рассматривая его под углом зрения, созвучным таким современным тенденциям. Поиск исходных материалов, таких как копии фильмов на пленке, и соответствующего научного материала затруднен из-за библиотечных правил выдачи, которые не распространяются на медиа-носители, а также осложнен несоответствием форматов иностранных фильмов формату, который является основным в коллекции того или иного учебного заведения. Данная статья рассматривает подобные проблемы клиентов, которые ищут фильмы, и включает в себя истории из опыта нескольких научно-исследовательских учреждений, как в Лос-Анджелесе, так и в Париже, содержит советы и идеи для потенциальных научных работников, которые пишут о кино в рамках академических исследований.

Methodologies for multilingual information integration in the domain of Chinese art [Методологии интеграции многоязычной информации в области китайского искусства]
Шу-юн Чен, Чин-ю Шенг и Хсью-хуа Чен
IFLA Journal 37 (2011) No. 4 pp. 296–304

В данной работе мы говорим о методологиях в рамках двух многоязычных исследовательских проектов. Мы обсуждаем представленную методологическую схему возможности взаимодействия китайского и английского языков в рамках соответствующих тезаурусов, включая четыре осно вных модуля: Перевод, Схематизация, Лингво-

этническая адаптация и Формирование. Также мы обсуждаем четыре этапа построения метаданных английского языка: Схематизация, Выбор, Перевод и Контрольный словарь. Кроме того, работа рассматривает ключевые вопросы, которые возникли при реализации обоих проектов, включая разную степень семантической эквивалентности терминов китайского и английского языков, перевод метаданных и качество метаданных.

UDC on the Internet: Theory and project in evolution for use of indexing and retrieval systems [УДК в сети Интернет: Теория и эволюция проекта для использования в системах индексирования и извлечения информации]
Мариангелс Гранадос Колиллас
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Отправной точкой данной статьи стало сравнение характеристик фасетной классификации и онтологии с переоценкой УДК (универсальной десятичной классификации) как аналитико-синтетической системой классификации. Для этого мы предлагаем теорию, использованную в качестве базиса для проекта 1980-х годов, но которая будет подчеркивать прогресс в области поиска и извлечения информации в контексте будущего развития сети Интернет. Эта теория основана на согласованном использовании предметных указателей библиотеки Конгресса (LCSH) и установлении их равнозначности УДК для целей индексирования. Процесс поиска данных основан на генерировании характеристики кластеров извлечения информации и привязке существующих управляемых словарей к свободному языку из числа всех языков, имеющих соответствующие записи УДК. Для достижения этого необходимо сделать УДК совместимой с существующими классификациями, и, таким образом, использовать все знания, структурированные к настоящему моменту, благодаря созданию подходящего формата.

UNIMARC and linked data [UNIMARC и связанные ссылками данные]
Гордон Дансайр и Мирна Уиллер
IFLA Journal 37 (2011) No. 4 pp. 314–326

Главной целью данной работы является демонстрация доводов в пользу и рекомендаций в отношении использования форматов UNIMARC для библиографической информации и данных о полномочиях в рамках RDF (схема описания ресурсов), стандарта консорциума W3C для структурирования данных в среде Семантической паутины и Связанных ссылками данных. Это продолжение работы, начатой ранее соответствующими группами ИФЛА в рамках представления Библиографического описания международного стандарта, и концептуальных моделей Функциональных требований к библиографическим записям, функциональным требованиям к данным о полномочиях и функциональным требованиям к данным рубрикаторов. Авторы статьи настоятельно рекомендуют Постоянному комитету UNIMARC обратиться к ИФЛА с предложением о финансировании разработки представления UNIMARC в RDF в качестве научно-исследовательского проекта.