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New paradigm, new educational requirements? Australian viewpoints on education for digital libraries

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Abstract :

The rise in popularity of the digital library has lead to studies addressing digital library education and curricula development to emanate from the United States and Europe. However, to date very little research has been conducted with an Australian focus. Additionally, very few studies worldwide have sought the opinions of practitioners and the influence that these opinions may have on developing appropriate digital library curricula.

The current paper is drawn from a larger study which sought to determine the skills and knowledge required of library and information professionals to work in a digital library environment. Data were collected via an online questionnaire from two target groups: practitioners working in academic libraries and Library and Information Science (LIS) educators across Australia. This paper examines in depth the findings from the survey specifically relating to the following topics. Firstly, whether or not there is a need for an educational programme to be targeted solely at the digital library environment. Secondly, the preferred delivery options for such a programme, and preferred models of digital library education. In addition, a determination on the elements which should be included in the curricula of a digital library education programme are discussed. Findings are compared and discussed with reference to the literature which informed the study. Finally, implications for the sustainability of library education programmes in Australia are identified and directions for further research highlighted.

Introduction

The subject of Library and Information Science (LIS) education in Australia has been a prominent discussion point in recent years, with particular reference to the skills, knowledge and attributes required of information professionals for the 21st century. This is supported by activities of the Australian Library and Information Association's (ALIA's) Education and Workforce Summit held in 2008 (ALIA, 2009), and continues with the "Re-conceptualising and

re-positioning Australian library and information science education for the twenty-first century" project funded by the Australian Learning and Teaching Council (ALTC). The project's aims are "to establish a consolidated and holistic picture of the Australian library and information science profession and identify how its future education and training can be mediated in a cohesive and sustainable manner" (ALTC, 2009).

The current paper is drawn from a larger study, the inspiration for which was the realisation that dedicated digital library programmes were being offered at LIS schools in both the United States and Europe, including at Masters level, yet there were not the same offerings available in Australia. Before ascertaining if a dedicated digital library programme is needed in Australian LIS education, it seemed appropriate to determine the skills and knowledge required of library and information professionals to work in a digital library environment. This insight could then reflect what elements might be incorporated into a digital library programme in order to facilitate the development of such skills and knowledge.

A survey research method utilising an online questionnaire was employed to elicit responses from both practitioners in academic libraries and LIS educators. This approach had a further benefit in identifying the level of discrepancy or concurrence between research and practice, an aspect often lamented in LIS literature (Hallam, 2007; Haddow and Klobas, 2004; Harvey and Higgins, 2003). The questionnaire consisted of open and closed questions, thus providing both qualitative and quantitative data. The key results from the questionnaire presented in this paper specifically relate to whether or not there is a need for a dedicated digital library programme in Australia; the preferred delivery options for such a programme and preferred models of digital library education; and a discussion of the elements which could be included in the curriculum of a digital library programme. The skills and knowledge required to work in a digital library environment are not addressed in this paper, however a full discussion can be found in Howard (2009).

Although the future requirements for LIS education have been a focal point in Australia, the literature review found that there are very few studies - either international or Australian - which identify the skills and knowledge required by information professionals to work in a digital library environment. Secondly, there is very little empirical data concerning the elements which should be included in a digital library programme to develop these skills and knowledge. Further, the studies that have been done in Australia have been more limited geographically than the study reported on in this paper (e.g. Partridge and Hallam, 2004) or they identified the skills and knowledge required through means other than seeking the opinions of the people actually working in that environment (e.g Kennan, Willard, Cole and Wilson, (2007); Kennan, Cole, Willard, Wilson and Marion, (2006); and Kennan, Willard and Wilson, (2006)). Consequently, this research has not only reduced these gaps, but has added to the extant literature in this area.

Findings from this study therefore provide empirical data that may be used to inform decisions on curricula development in LIS programmes in Australia. This is significant because if – as concluded by Gerolimos and Konsta (2008) and Marion (2001) – there is no recognised position of "digital librarian" then what is it that is needed to educate information professionals who will work in this digital environment? Additionally, Hallam (2007) notes that "[t]he topic of LIS education appears to attract plenty of criticism, but very few constructive ideas to respond positively to the challenges presented" (Hallam, 2007, p. 1). This research could be seen as a positive step towards the challenge of identifying educational requirements for information professionals who will work in this digital environment in Australia.

Results and Discussion

This section discusses the responses received from both practitioners and educators to the following themes presented in the online questionnaire:

- Is there a need for a dedicated digital library programme in Australia? Why / Why not?
- Preferred delivery options and preferred models
- Curricula inclusions for digital library education

Respondents' quotes are cited as they appeared in the questionnaire, with the exception of typographical errors which have been corrected. These can be identified by the use of square brackets. Misspellings or grammatical errors are retained but are identified as such by the use of the standard Latin "[sic]."

Is there a need for a dedicated digital library programme in Australia?

The responses from practitioners to the question "Do you think there is a need for a dedicated Digital Library education programme in Australia? Why/why not?" were summarised into the categories 'Yes' with 23 responses (40%); 'No' with 19 responses (33%) and 'Not sure/Inconclusive' recording 16 responses (28%). Those that supported a dedicated digital library programme noted that the digital environment "requires specialised knowledge"; that it "is the way of the future of librarianship"; and that a dedicated programme is required "to keep up with new developments." One respondent was quite emphatic, stating that "[t]he reputation and survival of our profession depends on it." *(Respondent #65).*

However, many respondents who answered 'No' still felt that education in the digital aspects of librarianship were important, but that this should be included as part of any LIS education programme. Respondents argued that physical and digital collections should be complementary and integrated in order to provide a seamless information delivery service:

> "No, because most Australian libraries that I have seen exist as both Digital and Physical entities and these services and [the roles] within them are completely integrated, as they should be. Physical [collections] should complement Digital ones. Having said that, I think it is very [important] to have a strong digital library focus in all library education programmes to ensure graduates are prepared." *(Respondent #28)*

Another respondent noted that the "[m]anagement, preservation, curation, descriptions should all be covered whether you are talking about hard or soft copy resources" *(Respondent #82)*, therefore to make a distinction between the two becomes extraneous.

Those respondents who did not specifically answer yes or no (who were therefore placed in the 'Not sure/inconclusive' category) also noted the importance of including digital aspects in LIS programmes, but without losing sight of the broader context. Others agreed with the inclusion, but were concerned with terminology, suggesting that the term "digital library" was perhaps not the most apt term, although no alternative was proposed.

The educators' responses to this question returned similar results: 'Yes' which recorded 6 responses (40%), 'No' which received 4 responses (27%) and 'Not sure/Inconclusive' with 5 responses (33%). One respondent noted that this was an area where "high level expertise" is required to deal with "the issues surrounding the collection, organisation and preservation of

digital materials" *(Respondent #5).* Two respondents mentioned the meeting of disciplines as a factor contributing to the need for a dedicated programme:

> "Yes. To ensure all the [complexities] of the combined discipline are fully understood and to provide a base to move forward" *(Respondent #14)*

> "Yes. I think that with the convergence of disciplines, the over-arching movement towards digital materials, and the need for digital preservation and curation all point to this need." *(Respondent #2)*

This multi-disciplinary view is supported in the literature by Rowlands and Bawden (1999), although it stops short of using this convergence as a reason to specifically advocate for a dedicated digital library programme.

Those educators who did not support a dedicated programme nevertheless echoed the comments given by practitioners – that this aspect of LIS education should be incorporated into current programmes, maintaining that by not doing so suggests a division between digital libraries and physical libraries:

> "No. I believe education about Digital Libraries should be integrated into existing LIS programs [.....] - to do otherwise sends a message that there is a distinction between digital libraries and other types of libraries. I believe almost all libraries have, or should have, elements of 'digital library' within their core function/services; therefore, it doesn't make much sense to me to provide a dedicated Digital Library education program. Also, I believe the market in Australia is too small to have such [specific] 'dedicated' programs." *(Respondent #3)*

Further, skills in the area of digital libraries were considered to be a requirement for any LIS professional in the 21st century in order "to work productively in that environment" *(Respondent #6)* and therefore should be "a core aspect of any library course" *(Respondent #10).*

The respondents who were unsure or gave inconclusive answers also provided comments in support of some form of digital library programme, but were largely unsure if it should be a dedicated programme or not. Again the concern was that:

> "The creation of separate courses encourages the 'digital library' to be seen as a form of collection and service provision which is somehow distinct from other forms of librarianship. I believe they are best understood as a continuum, whereby the various expressions of the the [*sic*] desire/necessity to collect, organise, store and provide access to information are underwritten by a common set of principles and overlapping practices." (*Respondent #11)*

A further response which answered both yes and no (it was consequently included in the 'Inconclusive' category for statistical purposes) reflected that the level of knowledge in this area may be dependent upon one's job position. This point highlights the challenge facing educators when developing curricula. Due to the wide and varied scope of LIS work – from dealing with differing formats (e.g. digital and physical) to differing sectors and specialisations (e.g. public to academic libraries; teacher librarian), it is difficult for library schools to be "all things to all people".

As can be seen, no strong indication was observed from either practitioners or educators for a dedicated digital library programme in Australia, although there was a slight preference towards 'yes' from both groups. However, those who responded that a dedicated programme was not required nevertheless acknowledged the need for digital library education. Weech (2005) contemplates whether specific digital library concentrations are necessary, asking if "the practice of digital librarianship has evolved beyond the need for specific programs in digital librarianship" (p. 5). He goes on to question whether there should even be "special programs for digital librarians or should all librarians be educated to work in a digital library environment?" (Weech, 2005, p. 6), an idea which is largely supported by the responses received from the questionnaire.

Delivery options and models

In order to ascertain the preferred delivery options for a digital library programme if it were to be introduced in Australia, respondents were given the following choices as to how it should be offered:

- a separate (optional) 'stream', but still within the general LIS programmes
- a specialist (perhaps postgraduate) qualification
- part of the 'core' modules in all LIS programmes (ie: not specialist)
- Other - Please specify

The overwhelming response from practitioners was that it should be integrated into the existing curricula (43 responses, 74%). Digital library education offered as 'a separate (optional) 'stream' received 10 responses (17%), while the 'specialist qualification' option was considered the least suitable choice (2 respondents, 3%). The 'Other' option attracted 3 responses (5%), with one respondent suggesting that "a basic understanding of DL concepts should be integrated into the curriculum plus specialist modules offered as options." In a similar vain, another respondent suggested that "a specialist qualification" and "included as part of the 'core' modules in all LIS programmes" were both suitable options, with the specialist qualification being offered at postgraduate level.

The models for digital library education were taken directly from Tammaro (2007), with the addition of "No dedicated model required" to provide an option for those respondents who did not believe a digital library education programme was required. The options were:

- technology as a tool for the building of digital libraries and the courses' focus on technological infrastructure and processes;
- digital libraries as environments concerned with the social and cultural contexts that digital libraries reside in;
- the digital library as composed of objects with the main focus on the management of the life-cycle of documents and artefacts in the digital environment;
- a combined model that includes different perspectives on the subject (Tammaro, 2007, para 2) and
- no dedicated model required

Practitioners selected 'a combined model that includes different perspectives on the subject' as the most popular choice, receiving 39 responses (67%). Respondents were asked to elaborate on their selection, and the predominant theme that emerged was that whilst the first three options were all appropriate and important inclusions, none of them should be offered in

isolation. The multi-disciplinary aspect was again referred to as the reason the following respondent selected this option:

> "[Students] need to be made aware of the multi dimensional aspects of this stream of the discipline -the LIS component, the IT component and the social and cultural context" *(Respondent #38)*

The option of 'the digital library as composed of objects with the main focus on the management of the life-cycle of documents and artefacts in the digital environment" was the next most frequently selected option with 7 responses (12%), followed by 'digital libraries as environments concerned with the social and cultural contexts that digital libraries reside in' (6 respondents, 10%). Some 4 respondents (7%) selected 'technology as a tool for the building of digital libraries and the courses' focus on technological infrastructure and processes' as the most appropriate model for a digital library programme, while only 2 respondents (3%) thought that no dedicated model was required.

The selection of 'integrated into existing curricula' was also the educators' preferred option for how a digital library education programme should be offered, with 8 respondents (53%) selecting this option, followed by 'a separate, optional stream' selected by 4 respondents (27%). The 'specialist qualification' did not receive any responses, but 3 respondents (20%) selected 'Other'. One respondent who selected this option suggested that both 'a separate optional 'stream' within the general LIS programmes' and 'included as part of the 'core' modules in all LIS programmes', would be suitable options *(Respondent #1)*, whereas another respondent suggested that it should be "outside LIS education" *(Respondent #13)*. Unfortunately this respondent didn't elaborate as to where education for digital libraries should reside, and given the multi-disciplinary nature of digital libraries, it is unclear if this should be computer science, information systems or some other discipline.

The educators' preferred broad model for a digital library programme was also 'a combined model that includes different perspectives on the subject', attracting 12 responses (80%). As with the practitioners, many educators noted that each model presented had its own merits, but that "it would be unwise to try and base a [course] on any one to the exclusion of [the] others" *(Respondent #11)*.

'Technology as a tool for the building of digital libraries and the courses' focus on technological infrastructure and processes' and 'digital libraries as environments concerned with the social and cultural contexts that digital libraries reside in' both received 1 response (7%), as did the option of 'no dedicated model required'. 'The digital library as composed of objects with the main focus on the management of the life-cycle of documents and artefacts in the digital environment' received no responses from the educators' group.

Curricula for digital libraries

In this section of the questionnaire, respondents were provided with a list of curricula inclusions derived from three existing digital library programmes: the International Masters in Digital Library Learning (Oslo University College, Parma University and Tallinn University joint Erasmus Mundus master programme); the Masters in Digital Library and Information Services, University of Borås, Sweden; and The Digital Library Curriculum Project (Chapel Hill/Virginia Tech collaboration). Each potential inclusion was to be rated as either "Highly Suitable", "Suitable" or "Less Suitable".

According to the practitioners, the most "Highly Suitable" element which would best deliver the knowledge required to work in a digital library environment was 'Digital repositories' (40 responses, 78%); 'Legal issues (e.g. copyright, contract law, Digital Rights Management)' were also important (33 responses, 64%) while 'Metadata' and 'User studies' were the equal third choice, both attracting 32 responses (62%). The elements deemed to be "Suitable" inclusions in a digital library programme included 'Digital Library origins and history' and 'Digital Library architecture' both equal with 30 responses (58%) and 'Web design and maintenance' (28 responses, 54%). However, 'Digital Library origins and history' was also ranked as the least suitable option (7 responses, 13%). The remaining two selections deemed "Less Suitable" were 'Information Literacy' (5 responses, 9%) and 'Social issues' (4 responses, 7%).

The three highest ranked "Highly Suitable" elements that educators considered would best deliver the knowledge required to work in a Digital Library environment received 9 responses (82%) each: 'Digital objects (e.g. file formats, migration)', 'Digital repositories' and 'Legal issues (e.g. copyright, contract law, Digital Rights Management).' The most "Suitable" were 'Digital Library origins and history' and 'Web design and maintenance' both with 6 responses (55%) each. Again, multiple options received the same rating in third place - 'Information architecture', 'Information Retrieval' and 'Technology of digital libraries' all received 5 responses (45%). Those in the "Less Suitable" category consisted of 'Digital Library management', 'Information literacy' and 'Technology of digital libraries (e.g. XML, XSLT, Database modelling, SQL).' These three elements all reported 1 response (9%).

All responses from both practitioners and educators in the "Less Suitable" category were quite low in terms of percentage (nothing over 7 responses, 13%). Coupled with the majority of elements being rated as either "Highly Suitable" or "Suitable", this could be an indication that these elements are all suitable inclusions in a digital library programme. As mentioned earlier, there is very little empirical data to be found in the literature to enable a comparison of these results. However, the list of potential inclusions provided on the questionnaire reported on in this paper align quite closely with that used by Koltay and Boda (2008) to determine to what extent Hungarian digital library programmes include these elements. Their results concluded that each of the three LIS programmes that were analysed incorporated all the core elements they identified as being necessary for digital library education.

Interestingly, the differences between educators' and practitioners' opinions discussed by both Harvey and Higgins (2003) and Hallam (2007), for the most part were not supported by the results reported here. Hallam (2007) refers to "the disparate viewpoints that exist between LIS educators and LIS professionals" (p. 1). However, the general agreement reached in response to these questions could be seen as a positive indication that the opinions of these two groups are not as disparate as previously thought.

Limitations and implications for further research

As potentially beneficial to LIS in Australia as this research may be, there are limitations, in particular the limitation of practitioner responses to academic libraries. Special libraries, Government and Corporate libraries and information departments would potentially have much to offer in this domain. A survey of school librarians may reveal the need for e-learning technologies and its application in their LIS education. Information literacy may also rate more highly amongst this group, along with pedagogical skills. A comparison of the results of such studies could then be used to inform curricula inclusions to a more refined level. The list of potential curricula inclusions given on the questionnaire was limited to a tertiary institution

focus. No attempt was made to incorporate Continuing Professional Development content in this list, so this could be an area of further research.

Despite being deemed appropriate for this study, the use of an online questionnaire as the data collection tool does have its disadvantages, including non-responses and incomplete responses. However, the study achieved a total of 63 fully completed questionnaires between the educators and practitioners, with geographical representations from each Australian State and Territory from which to source data. Additionally, survey research as the methodology was appropriate for what this study wanted to achieve, but it is acknowledged that for deeper, richer qualitative data, in-depth interviews or focus groups would be a better choice.

Another limitation concerning the scope of the study is that it was a broad overview. Due largely to time constraints, an investigation into the many disparate jobs that carry the word 'digital' in its title was not possible. However, the intention of this study was that it be a starting point - with no previous data within the context of the Australian digital library environment available, that is all it could be. It should also be relatively straightforward to replicate this study internationally, notwithstanding the need to potentially make modifications for the local environment. A comparison of findings on a country specific basis would also make for an interesting study.

More broadly, the convergence of Libraries, Archives and Museums (LAM) and the ensuing 'digital cultural heritage' sector could also benefit from similar research which may be useful in guiding an educational programme for this increasingly important field.

Implications for the sustainability of LIS education

Spink and Cool (1999) called for "a fundamental re-thinking of LIS education that reflects the need for DL curriculum and courses" (para.21), noting that "the development of digital libraries necessitates going beyond the offering of one or two digital libraries courses" (para. 21). They also suggest that LIS (and Computer Science) curricula need to be expanded "to encompass a more general digital libraries track" (Spink and Cool, 1999, para. 21). Myburgh (2003) discusses the notion of 'disjointed incrementalism' in relation to LIS, suggesting that the profession can only manage incremental change when perhaps it is more extensive and widespread change that is required. By way of example, she identifies the "piecemeal way" that modules have been added to LIS programmes in response to the changes in technology and "in order to increase the job opportunities for LIS graduates" (Myburgh, 2003, para. 13). The results of this research can potentially be used to mitigate these concerns and support the 'fundamental re-thinking' advocated by Spink and Cool (1999) in order to develop sustainable LIS programmes in Australia.

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