Are we there yet?
Students have their say about Library and Information Science education in Australia and twenty-first century learning

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Abstract
Library and Information Science (LIS) education faces considerable opportunities and challenges in the 21st Century. Institutions must produce a range of information professionals, including teacher librarians. These future professionals must be able to respond flexibly to rapidly evolving social, economic and technological change. Multimedia elearning environments and the interactive nature afforded by Web 2.0 technologies mean that LIS programs can be delivered globally and collaboratively to an international audience. Attracting students who will take LIS and the challenges posed by a rapidly evolving information landscape into the twenty-first century, is an integral part of building strong and sustainable educational programs.

Introduction
The Library and Information Science (LIS) profession and the education programs that provide a new generation of graduates face considerable opportunities and challenges in the 21st Century. Institutions must produce a range of information professionals, including teacher librarians, library technicians and librarians. While these future professionals may never be known by these more traditional titles, they must be able to respond flexibly to rapidly evolving social, economic and technological change. Multimedia elearning environments and the interactive nature afforded by Web 2.0 technologies mean that educational programs can be delivered globally and collaboratively to national and International audiences. Higher education (HE) and vocational educational (VE) institutions across Australia offer LIS courses via a number of delivery modes including face-to-face, blended, distance and wholly online. Attracting students who will take LIS and the challenges posed by a rapidly evolving information landscape into the twenty-first century is an integral part of building strong and sustainable educational programs. Therefore, the quality and content of students' educational experiences and outcomes will have a direct impact on the future growth, knowledge and expertise of the LIS and Teacher Librarian professions. LIS educators need an in-depth understanding of the characteristics and expectations of LIS students and recent graduates, as key stakeholders in the LIS learning process and ongoing development of the LIS profession.

In order to develop innovative, cohesive and sustainable LIS education, a research project funded by the Australian Learning and Teaching Council (ALTC) is investigating the current state of play in LIS education across Australia in both the HE and the VE sectors. The project is entitled *Re-conceptualising and re-positioning Australian library and information science education for the twenty-first century*. The primary objective of the project is to develop a Framework for the Education of the Information Professions in

Australia. Appropriately, the research team is made up of thirteen educators from twelve Australian tertiary institutions, which offer a wide range of LIS-related courses, including knowledge management and teacher librarianship at certificate, undergraduate and postgraduate levels. This paper reports on the preliminary research findings of the Student Sub-study group of the project which examined student experiences of LIS education across both the HE and VE sectors. It outlines the current learning opportunities, learner attributes, demographics, expectations and motivations, learning experiences and learning outcomes as experienced by current LIS students and new recent graduates across all sectors in Australia.

Background

The LIS profession in general and teacher librarianship in particular, struggles for legitimacy due to a lack of demarcated bodies of knowledge and strong public awareness (Whitmell, 2004) concerning the role of information specialists in today's contemporary/educational organisation. This is perhaps not surprising as the nature of the profession requires a degree of responsiveness to developments occurring in other fields as well as emerging social trends within the discipline. In the case of teacher librarianship, teacher librarians (TLs) are expected to demonstrate active participation across two professions, education and LIS. Declining numbers of LIS students over recent years (ALIA, 2010; Poynton, 2008) suggests that attracting students to a career in the library and information professions is problematic. Among potential and current students there is a lack of a solid understanding concerning the nature of the field and professional opportunities open to them as graduates of a LIS course. Among employers and Principals, the 'fuzzy' nature of the overall profession and lack of understanding creates some misconceptions about what a LIS course should entail. These are compounded by the number and varied content, disciplinary scope, and academic levels of LIS courses across the VE and HE sectors in Australia. Meanwhile, LIS course providers lack current information about changing student characteristics and expectations, as a basis for developing and implementing courses that respond innovatively to the educational needs of future LIS professionals.

As the scope of the LIS professions is rapidly expanding, career options for graduates are becoming more varied. There is a need for LIS programs to attract high caliber students who are able to adopt flexible, critical and creative learning approaches to become future LIS leaders especially in Teacher Librarianship where professionals are being cut from school libraries due to budget restraints. In order to achieve this, educators need to understand how and why potential students are attracted to LIS courses. In addition, educators need in-depth information about the aspirations of LIS students, as well as the needs of employers to ensure the ongoing sustainability of LIS education and the development of courses in line with evolving workforce needs. However, research about LIS students and graduates in Australia is limited in scope and becoming dated. It is almost ten years since Hallam and Partridge (2005) noted that little is known in Australia about the types of LIS students or their expectations of the LIS curriculum and their future profession.

Key attractions to the profession for LIS students in past studies included intellectual opportunities, the use of personal skills, and the desire to serve others or the community, alongside the practical need to earn a living (Hallam and Partridge, 2005). These motivators are very different to the love of books and reading that were frequently mentioned reasons in the 1980s (Hallam & Partridge, 2005). Meanwhile, the current generation of students are purported to be "highly motivated people who crave change and constant learning" (Markgren et al. 2007, p. 70) and seek the opportunity to work with other bright and creative people (Saw & Todd, 2007). While previously students sought personal recognition of their value to an organization, this new generation of young employees appears to be less loyal to a job and seek employment that supports their lifestyle and an organisation that uses the latest technology (Saw & Todd, 2007). In schools this may mean a generation of teachers who do not aspire to remain in educational settings for the majority of their working lives.

In order to attract and retain high-achieving students, LIS course providers need to effectively apply contemporary technologies and pedagogical approaches, and evaluate their outcomes. Although the online delivery of LIS courses is thought to enhance LIS educational opportunities and there has been a marked trend towards this delivery mode, there is a lack of research that investigates the extent, quality and outcomes of these courses, or compares online LIS learning with other modes, such as face-to-face and blended learning. In-depth research about LIS graduate destinations in Australia is also limited and dated (Genoni & Smith, 2005; Heazlewood, Pymm, & Sanders, 2006). Findings about graduates from between eight and eleven years ago may not necessarily reflect the experiences of recent LIS graduates given rapidly changing

technologies, social behaviours and employment patterns in Australia. Further, these previous studies are solely quantitative in nature and while providing a valuable demographic overview, they do not explore student expectations and outcomes. Even less information about the destinations of graduates from paraprofessional courses, or their employment in library technician positions and equivalent jobs across the information sector exists in the literature. The *Australian School Library Research Project* found the employment of library technicians (paraprofessionals) and library officers (non professionals) instead of professional staff in schools was a major issue across Australia with some states hiring fewer teacher librarians than others (Combes, 2008). While the number of paraprofessional graduates has fallen slightly since 2000 (ALIA, 2010), these individuals make up a large proportion of those entering the LIS sector every year.

Earlier studies (Genoni & Smith, 2005; Hallam & Partridge, 2005; Heazlewood et al, 2006) suggest that graduates at that time were fairly satisfied with their courses, in terms of being relevant and developing the skills required for securing employment. Is this still the case? It is essential for educational institutions to offer courses that are responsive to changing characteristics and expectations of potential and current students, and their rapidly evolving social and technological environments. A discrepancy between students' expectations of LIS work and the reality of professional practice is often associated with confusion about the distinction between librarians/teacher librarians, library technicians and library officers (Hallam & Partridge, 2005). Perhaps educators need to consider whether that the term 'library' causes a limited awareness of career options within the information professions and perhaps remove it from course titles, as Colvin (2009) suggests. Certainly in schools the library is now being renamed to reflect the changing nature of place/space it represents, with iCentre, learning commons and information centre representing this new nomenclature. While there is limited evidence available concerning general LIS graduates, in the field of teacher librarianship, professional LIS staff face ongoing cuts to positions and encroachments into traditional library spaces due to a lack of understanding of the role of the library in the life of the school community, the TL as an information specialist and the true impact of technology in educational settings.

This brief review of the literature reveals the need for up-to-date and in-depth research about LIS education, from the students' and recent graduates' perspectives. As key stakeholders, it is important not only to gauge their satisfaction with current courses in terms of employment outcomes, but also to determine whether courses meet their expectations with regard to social and professional engagement and intellectual challenge. There are significant gaps associated with para-professional education and online learning that should be addressed. While some quantitative data exists about graduate destinations, a more qualitative and wide-ranging approach is needed to provide more insight into how graduates experience the transition to the workforce and how LIS courses can prepare graduates for this challenging transition, especially in the context of expanding LIS horizons and a rapidly changing workforce.

Purpose of the research

Seeking student and recent graduate perspectives, the Student sub study was designed to gather up-to-date data about current and new LIS graduates and how they feel about their readiness for a rapidly changing and challenging workplace. It includes graduates from both the HE and VE sectors. The research aims to analyse current student and recent graduate experiences, perceptions and expectations, and outcomes of LIS courses in Australia. It investigated four key areas:

1. Learning opportunities;
2. Learner attributes;
3. Learning experiences; and
4. Learner outcomes.

Method

A combination of both quantitative and qualitative research methods were used in this study to thoroughly examine the research aims to produce a well-rounded piece of research (Moore, 2007). The literature reviews conducted by the Student Sub-study Group indicated there is lack of empirical data and in-depth qualitative feedback available about current and newly graduated students from LIS programs around Australia. The combination of quantitative and qualitative data collection methods allowed the sub study group to examine in detail the courses students are studying/have studied, how students feel about the content and delivery mode, and whether their courses overall prepare them for the workplace. Using both quantitative and

qualitative methods, sometimes called mixed methods, in a single piece of research is commonly used by researchers (Bryman, 2007; Creswell & Tashakkori, 2007; Jick, 1979; Pickard, 2007; Williamson, 2002). The integration of multiple methods allows for results to form a triangulation, so each section of the research supports and informs other sections (Jick, 1979).

The sub-study team, therefore, chose to use an anonymous Web-based survey containing both closed and open questions, focus groups and data collection from external sources such as the Department of Education Employment and Workplace Relations (DEEWR) to build a picture of both current and graduate LIS students in the HE and VE sectors. Surveys and questionnaires can be used to investigate trends occurring in a population (Pribyl, 1994) which are then used to inform a more in-depth examination using qualitative methods such as focus groups or interviews. Using the survey method allowed the sub-study researchers to gain "a snapshot of the current state of affairs in a given group or population" (Janes, 2001, p. 419). It also provided some empirical data about current and graduate LIS students around Australia.

Web-based surveys provide a cost effective platform to target the maximum number of participants and allows for a fast turn around for data collection (Nancarrow, Pallister, & Brace, 2001). The anonymity afforded to participants by using a Web survey was essential if the research was to capture students' true feelings about their educational experiences. However, Web-based questionnaires do have some limitations. "It is generally agreed that the major sources of error in surveys include sampling, coverage, non-response, and measurement error" (Couper, 2000, p. 467). Since most students and graduates eligible to participate in the survey had access to the Internet either at home, work or via their university/TAFE, coverage error was not considered to be high in this research. Sampling error occurs because not all members of the target population are participants. The higher the number of participants, the lower the sampling error and the more likely the results reflect the feelings of the whole population (Pribyl, 1994). In this research the final number of participants was quite high, with 291 current students and 98 graduates from across Australia participating in their respective surveys. The participants completing the surveys provided the sub-study team with a snapshot of LIS educational programs and how students feel about them. Non-response errors and survey fatigue are also issues when using Web-based surveys (Krosnick, 1999). In this research the surveys were extensive and there was some survey fatigue evident in the number of incomplete responses (82 current students and 21 graduate students) and feedback remarks from students at the end of the surveys. Non/neutral responses were included in the data reporting and only completed surveys were used to alleviate these issues.

A focus group is an organised, open-ended group discussion with specific goals, structures, time frames and procedures (Gillham 2005; Miles & Huberman 1994; Ritchie & Lewis 2003). In this research, the focus group sessions explored the experiences, expectations and perceptions of current students and recent graduates. The focus group sessions were informal and semi-structured with non-directive, open-ended questioning to encourage participants to describe the complexities of their practices, experiences and stories (Louis & Sutton, 1991). Current students and recent graduates were invited to participate in an hour long focus group session. The sessions were arranged over a two month period during September-October 2010. Each focus group was conducted by the same facilitator using teleconferencing that enabled participants to dial-in using a landline for the cost of a local call. Teleconferencing was considered a cost effective method in this study due to the dispersed geographical locations of participants. While the teleconferencing facility allows for greater objectivity and less influence by the facilitator, it can make it more difficult to ensure all participants have an equal opportunity to participate.

Participants were self-selecting in both the surveys and the focus groups. This method was deemed appropriate in order to capture as wide a spread of participants' views as possible from across the target population. Current students had to be enrolled in a LIS course, while graduates who were within three years of graduation were preferred for the graduate survey. Information about the surveys and focus group sessions was disseminated around Australia via the Project participants, email, LIS listservs and social networks (blogs, nings) on the Internet. Anonymity was assured and the surveys ran for approximately three weeks in July/August 2010.

Data Analysis

Data was analysed using standard descriptive statistics for the questions requiring quantitative responses. Responses from the open-ended survey questions and the focus group sessions provided qualitative data which were transcribed or annotated and coded thematically, with descriptions and assertions (Creswell,

1998; Miles & Huberman, 1994). Hermeneutic analysis provided an iterative analytical approach (Lee, 1994) to the dialectic between the understanding of the text as a whole and the interpretation of its parts, in which descriptions were guided by anticipated explanations (Gadamer, 1976, p. 117).

Findings

This paper presents the preliminary findings from the Web survey and includes an analysis of the descriptive statistics for the closed questions and some of the open questions only.

Demographics

Participants were overwhelmingly female (84.5% current students; 88% graduates), a result that supports the notion that LIS is a feminised profession. This feminisation of the profession is even more evident in teacher librarianship where 90%+ of respondents in the Australian School Library Research Project (ASLRP) were female (Combes, 2008). Approximately 20-37% of the participants were born outside Australia (27% current students, 19.5% graduates) and a small group of current students spoke a language other than English in the home (12.5%). None of the graduates spoke a language other than English. In both surveys the 40 – 49 age group was the highest, followed by 30 – 39. A high number of younger graduates 25 – 29 also participated in the graduate survey (34%). These results support demographic data from other sources that LIS students tend to be older and come to the profession as a secondary career. These results have ramifications across the LIS sector in Australia which increasingly provides services for communities that are multicultural in nature. This is also an issue for schools. The lack of LIS professionals who speak a language other than English and the homogeneity of the LIS demographic may mean that ethnic and migrant groups will not avail themselves of information services, because they do not feel comfortable in environments where their language is a barrier.

LIS courses

The level of courses experienced by participants ranged from a VE Cert III through to PhD. In the current students similar numbers were enrolled in Diploma (21.5%), Graduate Diploma (24%) and Masters by Coursework (24.5%), with a smaller number in Bachelor (16%). Of the graduate participants, 32.5% had completed a Masters by Coursework, 19.5% a Graduate Diploma and a Bachelor, with 15.5% a Diploma. In both surveys participants from the HE sector were predominant (71.5% current students, 73.5% graduates).

Participants had access to a number of specialisations within their courses, but these were contained within the LIS courses and represented traditional categories such as Information Science (general librarianship), Archives and Records Management, Teacher Librarianship and Knowledge Management. Both current (52.5%) and graduate students (47%) indicated they were either satisfied or very satisfied with the specialisations offered. Approximately 30% of participants in both groups checked the neutral box for this question indicating they may not have had access to specialisations in their courses. Only small numbers (10% current students, 15% graduates) expressed dissatisfaction. While professional associations and industry stakeholders worldwide are pushing the idea of LIS courses with specialisations in other areas of study such as Law and Business, this data indicates that this is not the case from the student perspective. The question, however, did not consider specialisations within courses, for example IT, digital recordkeeping or justice studies as a minor unit set in a major listed as a generic specialisation such as Information Services/Studies.

In the current students' survey group 41% of participants had a previous qualification below undergraduate (UG) level, and 21.5% who are enrolled currently in university courses do not have an UG degree. Therefore, more than a fifth of all potential graduates in this survey group will not be eligible for automatic associate membership to the peak LIS professional organisation in Australia (ALIA), even though they are graduating from courses recognised by ALIA. Overall, 32.5% of graduates and 26%t of current students gained their previous qualification before 1994, i.e. before the Internet and Web technologies. The Internet became publicly available in 1997 in Australia (Clarke, 2004) (1995 in the US) (Living Internet, 2009). In both groups many participants (37% current students, 41.5% graduates) gained their previous qualification before 1998. A further analysis of this dataset revealed that 48% of current students and 51.5%t of graduates who acquired a qualification before 1994 did not have an UG qualification. Of the current students, 38.5% acquired their UG qualification before 1994, while 29 per cent of the graduates fell into this category. The idea that LIS professionals will have a knowledge base in another disciplinary area is not supported by this data. Due to the changing information landscape and the issue of information overload, the value of content

in a qualification in another discipline is debatable, unless the person has actually kept abreast of changes and information in that area as a practitioner.

Course information
The preliminary findings of the study suggest that students take various pathways to achieve a LIS qualification. They tend to find out about courses via the Web (current students 53%, graduates 58%) and by word-of-mouth (current students 23%, graduates 23.5%). Traditional advertising methods such as newspapers, career advisors and expos scored very low. The result for career advisors is not unexpected as few would know much about LIS as a profession. Career expos are usually for young people seeking first careers. LIS does not have a profile or direct pathway for skill development at the secondary schooling level making information about careers in Information Science difficult to find. Finding information is even more problematic for students entering Teacher Librarian courses where students must have a teaching qualification and classroom experience before they can apply for the course.

Course expectations and satisfaction levels
The majority of participants from both groups were satisfied they had studied subjects they expected to find in their courses (current students 63%; graduates 77.5%). Participants were also satisfied or very satisfied about the content of their courses (current students 70.5%; graduates) and felt the content prepared them for the workplace and would be/was suitable as a prerequisite for professional employment (current students 77%; 76.5% graduates) These results indicate a close alignment between student expectations of their course content and strong satisfaction levels with course content. Interestingly, the graduate response for content suitability is slightly higher than the current students' response. However, while 46% of graduates reported the content as very useful, while only 38 per cent of current students fell in this category, indicating that graduates felt they were well prepared for the workplace. This result is at odds with some reports from industry stakeholders who believe that LIS graduates do not have the core skills required for their professional employment. Participants were also positive about the structure of their courses (current students, 71%; graduates 63%). It is interesting to note that none of the graduates said they were very dissatisfied with course structure.

Participants were generally satisfied with the teaching in their courses (current students 70 %; graduates 72.5%). Participants were also satisfied with the learning materials (current students 72%; graduates 74.5%) and valued the practical components of their courses (current students 66.5%; graduates 72.5%). None of the graduates reported being very dissatisfied with the teaching or the quality of the learning materials in their courses. While participants said the practicums were very useful, this was an issue for current students who felt they would like more practical experiences and access to industry practitioners during their courses (feedback open comment). Overall, participants reported high satisfaction levels with their course experiences (current students 80%; graduates 83.5%). Again, none of the graduates said they were very dissatisfied. The results in this section show high satisfaction levels, students feel the content has met expectations and in the case of the graduates, the content has prepared them well for professional employment. This result is interesting as most of the graduates (96%) and 75% of the current students were employed, with 50 % of the current students, and 87% of graduates working in the LIS sector.

Study modes and learning environments
Universities are offering courses on campus, wholly online, by distance education (in distance education some or all of the content materials are delivered by methods other than online and may include print materials or CDs) or a combination of two or all three methods to ensure a flexible learning environment for students. Participants in both surveys indicated high levels of satisfaction with the amount of flexibility offered by their institution to help them complete their course (current students 84.5%; graduates 83.5%). Most students were completing or had completed their courses externally, with blended learning being the next popular delivery mode. Nearly half of the current students (47%) were studying wholly online, with a smaller number of graduates having studied using this delivery mode (32.5%). These results indicate that online delivery is an increasingly important study mode for students. To examine student responses to studying online the data was examined further. The following results are for students studying wholly online (OL) or a combination of distance and online (DOL).

Participants who studied OL or DOL expressed high levels of satisfaction with the online learning environment (current students 73%; graduates 67.5%). Issues for students when working online include

loneliness and isolation, lack of motivation and poor communication between lecturers and students. Results from this research indicate that many students experience difficulty in forming relationships online (current students 35%; graduates 43%). Further examination of the data may reveal that this issue is age related although other research suggests that this is not the case (Combes & Anderson, 2006; McSporran & King, 2005; Muilenburg & Berge, 2005; Gulatee, 2010). When asked to compare motivation levels when studying OL or by DOL with face-to-face (F-T-F) results showed that motivation is an issue for some students (current students 17.5%; graduates 19%). When students were asked about their comfort levels when asking questions and giving opinions in the online environment, there were some differences between the two survey groups, with 73% of the current student group saying they were comfortable, while only 60% of the graduates fell in this category. These findings indicate that more than a fifth of the current student cohort report feeling uncomfortable when working online, which is cause for concern and suggests that providers still have some work to do to make OL delivery palatable.

Overall, participants felt the guidance and direction provided by online teaching staff was appropriate (current students 74%; graduates 71%). However, in both survey groups there were still a number of students (15 – 20%) who felt that guidance or direction from their online lecturers/teachers is an issue. Interestingly 30 – 40% of participants did not feel that the online environment enhanced their acquisition of new IT skills. This may be a reflection of the types of learning materials being used or the fact that most Learning Management Systems and software used to engage students online is very user-friendly. Results for the graduate survey group were on the whole, higher than the current students for this question.

Students were also asked to rank five aspects of online learning that were important to them. Overwhelmingly, current students (91%) reported that flexibility for time management was the most important, with the availability of rich content (30%), participating in online forums (23%) and greater opportunities for the acquisition of IT skills (22.5%) next in importance. Graduate students also overwhelmingly reported flexibility of time as the major benefit of working online, followed by online forums (24.5%), with rich content and greater IT skills acquisition of equal importance (21.5%). Interestingly, having access to discussion content ranked least important in both groups. Obviously for LIS students who often come to the profession as a second career and are working or have family commitments, the flexibility afforded by the online environment is a major reason for studying using this delivery mode. This result is supported by other findings in the research literature across a range of courses (McSporran & King, 2005; Muilenburg & Berge, 2005; Gulatee, 2010).

Students were also asked to rank possible barriers to their learning when working online. Participants felt the felt the greatest barrier to learning was the lack of face-to-face (current students 42%; graduates 34%). Current students ranked poor understandings, lack of communication and no guidance as barriers (14 – 15%), while graduates cited lack of communication (21.5%) and IT issues (15.5%). IT issues are still an issue for OL students, since 9% of current students and 15.5 % of graduates ranked this as the most important barrier to learning in an online environment. Despite these perceived drawbacks of studying online 48% of current students and 44% of graduates said they would enrol in an OL course in the future. However, a third of participants (current students 32.5%; 3 graduates 33.5%) said they would not enrol in a future course if it was only available wholly online. These results indicate that students perceive the online learning experience as different to face-to-face and despite the flexibility offered by this mode, there are issues associated with studying OL and they have a preference for at least some face-to-face interaction.

Student commentary

In general, students concurred that the skills they hoped to gain from their qualification would provide them with the "ability to work in a library". A number of students commented about "gaining the qualification" or "skills to make it in the industry" and "a qualification to get me a good job". A strong theme emerging from the study is that students desire practical application and experience, as well as theoretical underpinning in LIS education. Many students recall a similar sentiment: "Practical working knowledge that could be applied immediately in a work situation". Further, many students aimed to improve their IT skills, regularly citing them as important for future employment and an area of weakness. When asked to state their ideal position several responses from the current students indicated clear career aspirations. However, many respondents were uncertain about their future with quite a few keen to "work part-time while caring for family". 23% of the respondents consider Teacher-Librarian (TL) as their ideal employment. This may either indicate a strong demand for TL career opportunities, or that more students who are undertaking TL courses responded to the

surveys. More research is required to explore this further. Many participants also suggested that managerial and commerce skills are required for ideal employment. Some students felt that course accreditation with the industry bodies is sufficient, while others consider that expert training will be necessary if they are to achieve their ideal career role. Some students felt they are already employed in their ideal role.

Focus group responses indicated that students commencing their courses felt isolated and uncertain about where to find information to complete assessment. Despite some students being employed in a library, they considered that they did not have the basic understanding of how the library operates, hence the plea for more practical experiences. Others felt there was an assumption that everyone was employed in a library.

Evidence form the focus groups and the survey questions covered a wide range of issues, including the importance of IT skills, and some sections of the curriculum that students believe are not covered in their course. The importance of IT understanding as well as IT skills was the most cited issue for the future of LIS.

> I believe the role of LIS will increase due to the arising need and recognition of the need from the corporate sector. IT is no longer the fix-all solution anymore. Companies are and will come to the realisation that IT is not good without organisation and functionality.
>
> With the rise of electronic communication and increased computer literacy in the population the roles will continue to be vital and will also continue to evolve and change to meet new challenges.
>
> LIS professionals will have a role to provide and enhance access to materials. I see more work in value adding, taking material and turning it something that is actually useful for your client's needs.

Themes two and four of the study covered the findings that relate to online study modes, including the opportunities and challenges facing LIS students. Qualitative data supports the quantitative findings, and goes beyond to offer another perspective that did not emerge from the quantitative data. A link emerged between the increased offering of online study modes and the decline in undergraduate student numbers. It is acknowledged in the literature that there is a crisis in LIS education (ALIA, 2010; Poynton 2008) and there is strong evidence that the number of undergraduate LIS courses are declining (ECU, 2009). Focus group evidence suggests that while online education is particularly attractive to working students or those undertaking postgraduate level studies, it is not attractive to school leavers. Evidence from this study suggests that while the distance only model works for the postgraduate group, it doesn't necessarily work for attracting younger people. Hence, in order to attract a younger generation of LIS students in the future, it is essential to continue to offer on-campus education.

Generally students are optimistic about the future of the LIS profession, and consider that while roles will inevitably change, there is the need for LIS professionals. However, several students were concerned with the negative connotations and label or brand of librarian, and felt the term information manager is more attractive for a diverse career in the industry. Ongoing professional development was also raised in the focus groups which lead into a discussion about the UK model of being a Chartered Librarian.

> *There needs to be a shift in thinking to make the profession relevant in the community, as opposed to relevant to ourselves. So changing the way the courses are structured, changing the way the profession is structured....[such as] the chartered librarian status, you need regular professional development and just to maintain relevance in the community and not just accept what you do is fine forever.*

Many students supported the idea of further short courses and professional development, as something the VE and HE sectors in Australia should consider. Comments that development courses run through industry bodies were too costly and often difficult to attend also raised issues about ongoing membership of the professional bodies and networking opportunities.

Conclusions

Overall, the data obtained by the Student Sub Study group indicates that students are very satisfied with LIS courses being offered at various levels (VE and HE) around Australia. Findings indicate that current students and new graduates feel well equipped with the core skills necessary to begin their professional life. However, new delivery modes are not attractive to the younger generation of students. While findings indicate this cohort of new LIS professionals recognise the importance of LIS, they also note the issues of stereotyping and the need for strong advocacy. This advocacy must come from the professional bodies and is particularly relevant to the teacher librarian community which is suffering from staff cutbacks worldwide.

As the twenty-first century information landscape is constantly evolving and technology continues to push the boundaries for information dissemination, interpretation and management for both LIS professionals and their diverse clientele, the profession as a whole needs to recognise the importance of lifelong learning and ongoing skill development. LIS graduates entering this new landscape may never bear the title librarian or work in a traditional library. Instead they are the information managers of the future who may work in a variety of roles in global corporations, for government, as information specialists in schools or as consultants to small business. Advocacy and education both within and outside the LIS profession will ensure sustainability, as will closer connections between course providers, schools and the professional associations. Sustainability will only occur if all three work together to attract students to a range of quality courses which graduate flexible and adaptable professionals who will become that face of LIS in the future.

References

Australian Library and Information Association (ALIA). (2010). *Enrolments in library and information management courses*. Retrieved from http://www.alia.org.au/employment/enrolment.courses/ Bryman, A. (2007). Barriers to integrating quantitative and qualitative research. *Journal of Mixed MethodsResearch, 1*(1), 8-22.

Clarke, R. (2004). *Origins and nature of the Internet in Australia*. Retrieved from http://www.rogerclarke.com/II/OzI04.html#Beg

Colvin, G. M. (2009). Education for changing roles. *Information Outlook*, *13*(7), 21-26.

Combes, B. (2008). *Australian School Libraries Research Project: Australian teacher librarians. Report 1*.

Australian School Library Research Project, Edith Cowan University: Perth Western Australia.

Combes, B., & Anderson, K. (2006). Supporting first year e-learners in courses for the information professions. *Journal of Education for Library and Information Science (JELIS), 47*(4), 259-276.

Creswell, J. W., & Tashakkori, A. (2007). Editorial: Developing publishable mixed methods manuscripts. *Journal of Mixed Methods Research, 1*(2), 107-111.

Couper, M.P. (2000). Web surveys: A review of issues and approaches. *Public Opinion Quarterly*. *64*(4), 464-495.

Edith Cowan University. (2009). *University LIS Courses in Australia*. Unpublished report.

Gadamer, H. G. (1976). The historicity of understanding. In Connerton, P. (Ed.), *Critical Sociology Selected Readings* (pp. 117-133). Harmondsworth: Penguin Books Ltd.

Genoni, P., & Smith, K. (2005). Graduate employment outcomes for qualifying library and records management courses at Curtin University of Technology, 1998-2002. *Australian Library Journal, 54*(4), 336-352.

Gillham, B. (2005). *Research interviewing: The range of techniques*. Maidenhead: Open University Press.
Gulatee, Y. (2010). *An investigation into online teaching and the delivery of Computer Science topics: Practice, content and environmental factors* (Unpublished Doctoral dissertation). Edith Cowan University, Perth, Western Australia.

Hallam, G. & Partridge, H. (2005). *Great expectations? Developing a profile of the 21st century library and information student: a Queensland University of Technology case study*, IFLA. Retrieved from http://archive.ifla.org/IV/ifla71/papers/047e-Hallam_Partridge.pdf

Heazlewood, J., Pymm, B., & Sanders, R. (2006). Where are they now? A survey of Charles Sturt University library and information management graduates. *Australian Library Journal, 55*(4), 330-342.

Janes, J. (2001). Survey research design, *Library Hi Tech, 19*(4), 419-421.

Jick, T. (1979). Mixing qualitative and quantitative methods: Triangulation in action. *Administrative Science Quarterly, 24*(12), 602-611.

Krosnick, J. A. (1999). Survey research. *Annual Review of Psychology, 50*, 537-567.

Lee, A. S. (1994) Electronic mail as a medium for rich communication: an empirical investigation using hermeneutic interpretation. *MIS Quarterly*, *18*(2), 143-157.

Living Internet. (2009). *Web browser history.* Retrieved from http://www.livinginternet.com/w/wi_browse.htm

Louis, M. R. & Sutton, R. (1991). Switching cognitive gears: From habits of mind to active thinking, *Human Relations, 44*, 55-76.

Markgren, S., Dickinson, T., Leonard, A., & Vassiliadis, K. (2007). The five-year itch: Are libraries losing their most valuable resources? *Library Administration & Management, 21*(2), 70-76.

McSporran, M., & King, C. (2005). *Blended is better: Choosing educational delivery methods.* Paper presented at the proceedings of the World Conference on Educational Multimedia, Hypermedia and Telecommunications, Montreal, Canada.

Miles, M. B. & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook*, (2nd Ed.). Thousand Oaks, CA: Sage Publications.

Moore, N. (2000). *How to do research.* London, England: Library Association Publishing.

Muilenburg, L. Y., & Berge, Z. L. (2005). Student barriers to online learning: A factor analytic study. *Distance Education, 26*(1), 29-48.

Nancarrow, C., Pallister, J. & Brace, I. (2001). A new research medium, new research populations and seven deadly sins for Internet researchers. *Qualitative Market Research: An International Journal, 4*(3), 136- 149.

Pickard, A.J. (2007). *Research methods in information*. London, UK: Facet Publishing.

Poynton, C. (2004). Received wisdom. *Managing Partner, 10*(9).

Pribyl, J.R. (1994). Using surveys and questionnaires. *Journal of Chemical Education, 71*(3), 195-196.

Ritchie, J. & Lewis, J. (2003). *Qualitative research practice: A guide for social science students and researchers*. London: Sage Publications.

Saw, G. & Todd, H. 2007. *Library 3.0: where art our skills?* IFLA. Retrieved May 4, 2011 from http://archive.ifla.org/IV/ifla73/papers/151-Saw_Todd-en.pdf.
Williamson, K. (2002). *Research methods for students, academics and professionals: Information management and systems.* (2nd Ed.). Wagga Wagga, NSW: Centre for Information Studies Charles Stuart University.

Whitmell & Associates. (2004). *Preparing for demographic change: Workforce and succession planning of the Australian technology network.* Unpublished Report.