

Where is the I(nformation) in GLAM? Education, Knowledge and Skill Requirements of Professionals Working in GLAM Sector Institutions

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Abstract

This paper presents findings of a qualitative investigation of the employer-identified knowledge and skills required of professionally trained staff in the galleries, libraries, archives and museums (GLAM) sectors. Six group interviews and six individual interviews were conducted with Directors or their representatives from GLAM institutions in major and regional cities in Australia. The interviews were analysed according to the institution type, and the knowledge and skills discussed. The findings are situated within a wider conversation about the convergence of GLAM institutions, proposing that LIS education programs may have an opportunity to adapt their current courses to meet the needs for collaborative skills and knowledge in this sector.

Keywords

GLAM education; LAM education; museums; galleries; libraries; archives

Introduction

Since 2005 there has been a growing number of articles on convergence within the Galleries, Libraries, Archives and Museums (GLAM) sector. Most of the early works focused on the cultural and social roles of GLAM organisations and their shared status as advocates of democratic ideals (including education, free flow of information, equitable access to ideas and inclusive narratives of culture/history) (Hedstrom & King, 2004). A recent study of the challenges and opportunities for Australia's GLAMs notes that the sector is facing shifts in practice due to 'dramatic changes in how people access, share and engage in digital services' (Mansfield, Winter, Griffith, Dockerty, & Brown, 2014, p. vi). The study also argues that:

Woven through the conversation has been the necessity for new skills: media and content creation, social media engagement, crowdsourcing and online participation, online development. Across the sector, institutions have met these needs by retraining existing staff, hiring new staff with the desired skills, out-sourcing to outside organisations or partnering (Mansfield et al., 2014, p. 28).

There has been debate about whether shared ideals and the move to the digital in terms of collections and access is enough to converge actual practices and institutions, because each GLAM domain has created their own norms and practices based on information/artefact type and the information and other needs of their users. Bicknell argues that 'the blurring of mission and operations affects the knowledge workers employed in the GLAM sector.' (Bicknell, 2017, p. 11), and educational institutions clearly play a role in responding to this shift, as they collaborate with both accrediting bodies and employing institutions to develop and extend curricula (Kelly, 2018).

In order to investigate possibilities in this space this paper reports on what employers and practitioners in GLAM institutions see as the educational, knowledge and skill requirements for professionals working in the sector, in order to understand the commonalities and differences. The research identifies that across the GLAM sectors there is a direct interaction with the skills and knowledge that LIS programs are centred around, but that this is not clearly articulated. The researchers propose that LIS programs are positioned to respond to some of the needs of GLAM institution sectors, and suggest future avenues for research.

Literature

Background to GLAM Convergence

The literature in this area sometimes refers to GLAM and other times to LAM or ALM. Reasons for this include that the 'G' is often removed to clarify that while art museums are included, commercial and other galleries outside of the memory/ cultural heritage sector are not included in the analysis. As the acronym GLAM is more frequently used in Australia, we use it, noting we did not include commercial galleries in our project. An extensive review of the literature on GLAM convergence was recently published (Warren & Matthews, 2018a, 2018b) which describes potential convergences and collaborations including shared programming, collaborative creation or management of digital collections, and the sharing or integration of facilities. However, despite common functions there remain major differences in professional practices, education and training across the GLAM professions, leading to differences in professional identity, values, language and communication (Duff, Carter, Cherry, MacNeil, & Howarth, 2013; Hider & Carroll, 2018). Libraries, archives and museums and the practitioners, researchers and educators who work in and for them, have distinct historical traditions that do not necessarily overlap, resulting in different cultures (Latham, 2015). They also have different professional bodies, which aim to advocate for their members and the development of their workplace knowledge and skills (Warren & Matthews, 2018a). Bastian suggests that it is 'largely through [. . .] distinctive education that separate disciplines have emerged' (Bastian, 2017, p. 334). Current educational programs emphasize differences rather than similarities (Trant, 2009), perhaps with the exception of emerging digital curation specialisations within LIS programs (Ray, 2009), and programs such as the museums specialisation in the Master of Library and Information Science at the iSchool at Kent State University (Latham, 2015). The interdisciplinary agenda advocated by the iSchools movement (Shu & Mongeon, 2016) may provide a place which can both enable the similarities with the GLAM sector to be leveraged, and the differences to be articulated and supported (Cox & Larsen, 2009; Duff et al., 2013; Given & McTavish, 2010; Latham, 2015).

Educational Programs

Across the GLAM sectors, there are post-secondary education programs that target each individual sector, with programs in librarianship, archives, and museum, heritage and/or curatorial studies. There are many examples of library and archive studies being taught as a part of the same programs or within the same schools in Australia and elsewhere (Cox & Larsen,

2009; Hider & Carroll, 2018). There are far fewer examples of museum studies being taught with library and archives programs (Kim, 2012; Latham, 2015). This is likely because both libraries and archives are both explicitly concerned with information, with digital information technologies at their core and use professional associations and their accrediting requirements to direct curricula (The Archival Education and Research Institute (AERI), & Pluralizing the Archival Curriculum Group (PACG), 2011), while museum education is more informed by requirements of individual museums themselves (Barrett, 2011; Cox & Larsen, 2009; Hider & Carroll, 2018) and are offered in a very wide range of disciplines, programs and schools (Kim, 2012). In addition (in the US at least) museum studies curriculum content has never been agreed on (Welsh, 2013) while in Europe there are only very general agreed requirements including 'museology' (Ruge, 2008; Williams & Simmons, 2007). In mapping the curricula of Australian museum and art curatorial courses in Australian universities against the specific foundational 'knowledge, skills and attributes' that the Australian Library and Information Association and Australian Society of Archivists require their accredited courses to cover, Hider and Carroll (2018) found elements in the museum and curation programs which were similar and elements which could not be mapped to typical library and archives programs. Both Kim (2012) and Marty and Twidale (2011) noted that mostly the museum and library programs themselves were separate, even when offered in the same university. In Australia, very few library and museum courses are even offered in the same institution (Howard, Partridge, Hughes, & Oliver, 2016).

While some would classify museums studies as an 'information' discipline (Latham, 2015) this is not a view held by all. It does depend on the definition of 'information' which this paper does not have the space to discuss. In the museum studies literature, information is less frequently mentioned, for example, it is not explicit in references to the four historical functions of museums; collections/conservation, research, exhibition and education (Dubuc, 2011). Bomar (2012) identified that museum studies programs were meeting the needs of their sector well, but that there were differences in what is most valued by graduate curricula versus what is most valued by leaders in the museum sector. Of note as valued by the sector were 'financial management, information technology, public programming, communications, and information and collections management and care' (Bomar, 2012, p. 215). While 'information' has a clear role in some of these broad and narrow functions in museums and museums curricula, in others information is not so foregrounded.

Method

This study aims to contribute to further understanding by investigating what GLAM employers have to say about the knowledge and skills required to work in their respective GLAM sector. In

this study, the researchers adopted an interpretive approach to describe and understand GLAM employers' views about the knowledge and skill requirements for professionals working in GLAM organisations. The logic of the inquiry was inductive and based on the views of the participants situated in their own context (Cecez-Kecmanovic & Kennan, 2018). The findings are presented and analysed to explore potential roles in GLAM education for LIS programs. In late 2017 directors of GLAM organisations in Australia from a broad selection of organisational types represented by the GLAM Peak alliance (GLAM Peak, n.d.) were approached and invited to participate in interviews. The interviews were designed to probe GLAM roles, the work done by GLAM professionals, key knowledge and skill, education and training requirements. The interview schedule (Appendix 1) was designed to be as open as possible to encourage participants to use their own words and enable a ground-up analysis. Prompts were minimal and where deployed focused on the common functions of GLAM organisations' as identified by the Innovation Study: Collection, Conservation, Access, Research, Education and Facilitation (Mansfield et al., 2014, p. 2).

Twenty directors or their nominated staff agreed to participate, six from libraries, five from archives, six from museums and galleries and three from self-identified converged organisations. For the purposes of this project, a converged organisation is one whose core activities include two or more of galleries, libraries, archives or museums. For example, an institution that exhibits artworks and holds archival collections, both as core activities and both related to the organisational mission. This does not include, for example, museums who also have a small research library and/or archive which support the museum staff, but which are not core services to the public.

Participants were purposefully selected in order to achieve a cross-section of organisation types, achieve diversity in organisation size and type, and in locations accessible to the researchers: Canberra (a range of large national institutions), Sydney (a range of large and small organisations), Adelaide (a range of large and small organisations) and regional NSW (smaller organisations). These organisations reflect GLAMs funded by the three tiers of government in Australia (local, state and federal), and the academic sector. In addition to employing GLAM professionals, these institutions employ other professionals, for example, accounting and finance, information technology or human resources professionals, and the larger museums and galleries also have libraries and archives staffed by people specialising in librarianship and archival sciences. Therefore, participants were asked to focus their responses on their main 'GLAM' employees – librarians and archivists in the libraries and archives, curators and museum professionals in the galleries and museums. School and special libraries were not included in the sample.

In order that participants could be aware of what was being said by others in addition to contributing themselves, group interviews each comprising of participants from a range of GLAM sectors were planned. The interviewers took care to ensure that all present were given the opportunity to respond to each question or talking point (Cohen, Manion, & Morrison, 2011) by explicitly giving each participant an opportunity to respond to each question. An example of the techniques used is in the portion of transcript below:

So are each of you still mainly employing people with library or archive or museum backgrounds . . .
. [Interviewer]

So for the positions in archive, definitely archive experience is really important particularly maybe believes in this digital age you need more archival strengths, it's not good bringing in someone who just has experience and there's actually a huge difference between records management and archives in the skills that we see that they have and to a degree the interests. [Archive]

That's right. [Museum]

In the library . . . we have too many positions where we say library qualifications are important when we should have for example logistics managers . . . [Library]

However, sometimes it was impossible for the nominated person to attend a group interview and in such cases, individual interviews were conducted. When topics had been raised in the group interviews but not in individual ones, participants were also prompted as follows:

Another sort of crossover area is talked about [in group interviews] is education . . . [and] . . . exhibitions, or bringing tour groups, or children's school groups or whatever in. Do you guys do that? [Interviewer]

We do exhibitions. There's one out in the foyer at the moment that [name] did, she's the one who's got the museum studies background. So just look at that, it's in the foyer [Archive]

Six group interviews were held, and six individual interviews. Interviews ceased once saturation (the point in data collection when no new or relevant information appears to emerge with respect to the topic under investigation (Saumure, 2008)) was achieved.

Interviews were semi-structured, audio-recorded and transcribed using a professional service. Two types of coding were employed: initial coding using the common functions of GLAM organisations identified by the Innovation Study (Mansfield et al., 2014, p. 2) and education and training requirements as a guide. This was followed by more focused and emergent coding concentrating on recurrent patterns, interconnections and variations, for analytical depth. The

themes which emerged from the two stages of analysis, inform the findings with quotes from respondents to assist the reader with understanding the trustworthiness of the analysis and reporting. As we found variation in the education, knowledge and skill requirements between the sectors, quotes in the text that follows are attributed to the organisation type: library, archive, museum/gallery or converged. The study was approved by the Ethics Committee of the researchers' university and participation was voluntary.

Findings

In the higher education context 'knowledge' generally refers to what a graduate knows and understands. Knowledge can be generalist or specialised, narrow or deep, concrete or abstract. 'Skills' refers to what a graduate can do, and may be cognitive or creative, technical, communicative or interpersonal (Australian Qualifications Framework Council, 2013). We begin reporting our findings with what are commonly known as 'generic' skills, and sometimes by other terms such as employability 'capabilities', 'competencies', or 'essential' or 'graduate' skills (Bowman, 2010). Following that we report the knowledge required, noting that people, such as the employers interviewed in this study, tend to refer to knowledge and skills interchangeably, as they are thinking more about how knowledge is learned and applied in the work context, making it sometimes difficult to disentangle knowledge and skills. Finally, we report on the current education requirements. As we progressed through the interviews it became increasingly clear that there were areas of great similarity and also areas of great difference. As the research has been sparked by discussion of convergence, we begin first with the similarities.

Generic Knowledge and Skills

In almost all cases when opening the interviews with a question about what knowledge and skill are required of professionals working in GLAM organisations, the first mentioned were generic knowledge and skills: those associated with no single profession or discipline but which are associated with being a professional. The four broad categories recognised by the Australian Qualifications Framework Council (2013) are:

- Fundamental skills such as literacy and numeracy appropriate to the level and qualification;
- People skills such as working with others and communication skills;
- Thinking skills such as learning to learn, decision-making and problem-solving; and
- Personal skills such as self-direction and acting with integrity.

Each of the organisation types mentioned each of these areas (with the exception of fundamental skills which may be taken as a given), but with different emphases. Examples include:

People skills:

So what you're looking for is evidence that they have got an aptitude and a proficiency for the communication of either science, or their chosen subject . . . [Museum].

. . . You cannot work in your own isolation, you are not sitting in a dark room anymore . . . , you know pouring over your records, you must be able to work with other people. [Archive]

Thinking skills:

. . . a whole lot of theoretical and critical thinking about how museums are presenting exhibitions and how you do exhibitions and how you combine creative collaborative interdisciplinary practice [Museum]

What's the interpretation, the interpretative stuff certainly is learned on the job by hopefully someone else who knows how to learn . . . [Library]

you know we can teach people record keeping and digital literacy, but what I find is having staff who can do everything else – talk, presentations, speaking in front of people, managing other people, willingness to make decisions [Archive]

Personal skills:

. . . or professional behaviour and working within the institution . . . so, that's something that's really important [Museum]

. . . cultural awareness, thinking you can't have everything your own way all the time, how to be flexible, how to be, how to maintain a positive attitude in difficult times . . . [Library]

Interestingly only the converged organisations mentioned advocacy, whereas in the literature of the GLAM sector we see advocacy highlighted. Some terms were controversial – for example 'passion'. While many felt that passion was a useful and motivating trait, others were less enthusiastic:

. . . we do have people on staff who are deeply passionate about the cause . . . well often that leads to poor decision making [Archive]

The primary takeaway is that although there are differences, there are great similarities in generic skills requirements across the GLAM sector, particularly in the people and personal skills.

Specialist Knowledge – or What is Expected from an Education

When asked about specialist knowledge required to work in their organisations, libraries and archives responded with short cut responses, for example ‘traditional library’ or ‘traditional archives’.

Yeah a generalist degree to give you the grounding, and then the specialist (librarianship or information studies) as graduate is, yeah is ideal. [Library]

When asked to expand, libraries mentioned information literacy, cataloguing and metadata, search and discovery, facilitating research, reference and interpretation of collections, and archives mentioned disposal, appraisal, reference, the records continuum, ‘keep, destroy, transfer’, or concepts of archival management, classification and description.

I’ve always liked the model of the degree in everything else, like so an arts degree, a science degree, IT or whatever, and then the adding of those like your information skills on top of that, that you produce a broad well-rounded education, like education that is then focused into a profession [Archive].

In contrast, the museums and galleries mentioned specialist fields of knowledge, including art, design, fashion, engineering, music, various scientific disciplines and anthropology.

We probably do get a large proportion that come to us with a Masters in, in Museum Studies so that, is a really strong vocational course on, on working in a museum. But because we have such specialised areas, for example science, quite a few of our assistant curators come to us really from with a background in science [Museum]

. . . in terms of the curatorial stuff, all of them have a fine arts background. So, they studied glass, photography, silver-smithing, print-making, yeah, all – just about – yeah, and as starting out as practicing artists they would have put together exhibitions of their own, and so, and then they transferred to the dark side [Museum]

Many of the larger galleries and museums also employed specialist librarians and archivists:

. . . the curators work a lot with the archives and library we just don’t have the time to spend doing in-depth research with our archives collection, although it, it, it does depend on, on the project. . . [Museum].

Libraries and archives situated in galleries and museums generally tend to have a smaller proportion of the staff and are generally seen as support for the main function of the organisation. In terms of specialist knowledge, galleries and museums were much clearer in stating that there is 'no one clear path' [Museum]

Converged institutions also focused on specialist fields such as art, military history, creative practice, but also included library, archives or records knowledge as specialist fields.

So, we have – we have clear roles for people so that we have an archivist and that's their role and they look after it and they're – what they say, everyone trusts that they're fountain of all knowledge. . . So, there's someone who's a local . . . a local studies librarian and she's got her first degree in arts, interestingly, and then she's gone back and done librarianship . . . then we have a filmmaker/researcher . . . [Converged]

Overlapping Areas of Knowledge Requirements

There were definite areas of common knowledge requirements. The most similar were the management and business knowledge. All organisations noted the importance of people, project and financial management, marketing, promotion and event management, statistics and reporting knowledge and skills. Archives had a focus on change management and perhaps relatedly, business analysis and risk management. Museums also had a focus on managing change but an area of difference was the focus on asset management, strategic relationship building and fundraising. The converged organisations were the only ones that mentioned policy development and evaluation, but these would seem to be two management skills that would be useful across the sector.

. . . the digital object needs to go through a series of generational kind of changes as technology moves, and the last one becomes obsolete and the software goes, and all those kind of problems that we face like that. So I think really good project management skills, a really good understanding of risk and risk management. . . [Archive]

. . . so fundraising and membership, corporate services, so finance, IT, facilities, management, . . . [Museum]

Project management, people management, financial management; there are so many managing statistics . . . [Library]

I will mention that in terms of asset management, one thing to do with collection management, and it is related to conservation as well, is to do with evaluations, and that's something where we have to

– you know, in order to maintain accurate insurance value for the collection, because it fluctuates, the market fluctuates. . . . and that also is part of the ongoing auditing process to make sure we have what we think we have, and we know where it is [Converged]

Similarly, all participants mentioned *collections knowledge*. Emphases were slightly different with all acknowledging the move to digital, but also the need for understanding of print, object or ‘analogue’ collections. Libraries specifically mentioned traditional library *collection management* knowledge and practice, and Archives had a similar focus on collections, referring sometimes to the *archives continuum* or *concepts of archives management* when discussing collections theory and management. Museums also mentioned the importance of collections and collection management, with again some similar concepts such as registration and recording, but also bringing in the new concept of representation, and perhaps arising out of their focus on objects both analogue and digital, also storage, conservation, managing specialist environments and access. Not surprisingly the converged institutions mentioned all of the above, but had the additional requirement of knowledge of managing outdoor collections.

[We] need people who are used to looking at collections and can assess what is useful; what should be retained and what’s dross and you get a certain amount of that obviously in your tertiary education and your tertiary training [Library]

Collection, curation, access, research, education, facilitation. I mean, I think they’re – I think they’re all roles of every one of the GLAM have got to take responsibility for. . every one of us is across every one of those. [Museum]

But if we’re engaging with people to ensure that what we get into our collection is of use, we have to speak this language otherwise we’re just not going to have a useable collection into the future and we’ve got this big data problem, you know well how are we going to make sense of that? [Archive]

So, I have a public art collection, which is interesting, because it’s outdoor- [Converged]

The next area of commonality was *digital and information technology (IT) skills*. Libraries explicitly mentioned digitisation, programming, digital curation, digital preservation, digital access, social media, social impacts of technology, website design, digital repositories, repository management. For example:

Over and above the traditional skills – well digital skills now as in being able to work online; create things online and manage collections that don’t have a physical presence – they only have a digital presence that’s becoming more and more important [Library]

Archives had a similar list of requirements and added that for the future there was a growing need for software maintenance and coding, and understanding of machine learning and its potential applications for automatic classification of large volumes of information.

. . . Do you want to know what I'm working on? Artificial intelligence, coding. I don't have a background in coding, but that's what I'm forced to do, I'm forced to look outside the box now. We're looking at machine learning- [Archive].

Because the digital object isn't a permanent object, this is something else we need to have understood broadly as well, the digital object needs to go through a series of generational kind of changes as technology moves, and the last one becomes obsolete and the software goes, and all those kind of problems that we face like that [Archive].

The main focus of museums was 'moving collections online', digitisation and database management: *I cannot imagine a museum in the future without a digital component, it is just now that that is what the twenty-first century requires [Museum].* The converged organisations added 'digital curation of websites' and also mentioned software maintenance and coding. All participants stressed the importance of understanding and using social media from an organisational perspective.

Research knowledge was another common area although again with areas in common and differences. In addition to mentioning the importance of research generally, libraries then went on to emphasise evidence-based decision-making, research support, understanding of digital humanities, and how to use qualitative analysis in reporting.

. . . well it depends what you mean by research because research is multifaceted. So we do a lot of training for researchers around their identity, around data management, social media, promoting their research, just making their research known. . . I wouldn't say they [new librarians] come with particularly good research skills . . . [Library].

The other organisations also mentioned practical research, 'not necessarily academic' research, and research associated with the interpretation of collections and provenance and for more practical purposes, for example:

It's not you research the collection cos it's fun to do, it's you actually having to gather information to do something with, so you know any student should have some sort of research skills because that's part of. . . doing a degree. But it's then taking it to the next step, you're not writing an essay or a thesis, you've actually got to convince an unwilling government minister to give you 10 million

dollars to save a collection or something, or you've got to demonstrate how we actually, what would benefit to society [Archive].

And here we've actually had to do quite a bit of work around developing research and writing skills and empowering curators to find the time to do it, and research does definitely sit between collections and curatorial [Museum].

Museums and converged institutions mentioned both grants writing and grants assessment, which were not mentioned by libraries or archives.

Data are another common area, with libraries focusing on data governance, data literacy (So we do a lot of training for researchers around their identity, around data management [Library]), data management and data curation. Archives were more specific adding data structures and modelling, and the converged institutions data visualisation, with the warning that:

... you have to have some level of knowledge in both the IT and data space, it's sort of almost become mandatory; if you want to work in the GLAM sector into the future you need to be data literate [Archive].

The museums did not mention or concur with data issues except in the context of database management and it may be that the data revolution and big data have not yet made an impact there.

All participants mentioned the importance of understanding the *context* of the organisation, both internally and environmentally. All mentioned *legislation*, common ones including copyright, privacy, and freedom of information, records and archives acts and so forth. While most were in common, some contextual areas were specialist, for example, the legal requirements around archaeological artefacts. Context also included organisational, sectoral, and professional association codes of conduct. Environmentally libraries mentioned the importance of understanding, for example, the higher education or public library demographics and funding, whereas museums had other contextual concerns:

So it just can't be about the ideas, it has to be about the practical realities that we face [the importance of] increasing visitation, increasing revenue, generating a lot of press [Museum].

A final common area, one which was not necessarily expected by the researchers yet mentioned by all participants was knowledge to enable participation in *teaching, training and educational programming*, or collaboration with teachers, or having an understanding the language of education.

I think we in terms of that applied sciences in particular we do a lot in that STEAM space that is directly related to the curriculum. So we have staff that specifically speak to that [Museum].

The focus on public programs in all government areas, in the GLAM sector is just becoming more and more, because it is that having to justify your existence and having to make things more and more accessible to more and more people. . . [Library]

Knowledge Areas of Difference

The major area of difference is *curation/ curatorship*, a knowledge requirement in museums (of specialist area) and converged organisations (depending on specialist area) but not in libraries (except one) and archives.

So for the longer standing curators, that definitely has been learning on the job, but with the shift and professionalisation of curation through formal studies and so on, now we, we have curators that come with, with very finely developed . . . skills [Museum].

A further area of difference is *exhibitions*. Museums and converged institutions had a strong focus on exhibitions; proposing, developing, designing, curating and writing catalogues for them. Converged institutions also mentioned interpreting exhibitions, creating digital exhibitions and having an understanding of the spatial aspects and physical requirements of an exhibition. Libraries did not mention exhibitions at all, and archives mainly mentioned the importance of online exhibitions.

The mention of writing catalogues in the museum and converged organisations led to a greater discussion about *writing skills* generally. Converged organisations stressed the importance of writing for the public and grant writing, and museums spoke much more about the importance of writing skills for a range of different audiences, from media releases to writing for publication, and using different voices, for example, an ‘art voice’ for catalogues and articles or a ‘government voice’ when pitching for budget.

Educational Requirements

Libraries and Archives

Within each different GLAM sector, there was a great deal of consistency in education requirements, however, there were differences between the sectors. Libraries generally want their

librarians to have a library/information studies qualification recognised by a professional association:

. . . Anyone with Professional Qualifications Fits into that [Library]

Four of the six also mentioned the usefulness in the Library sector of other specialist knowledge and skills for librarians such as logistics, conservation or an education or teaching degree in addition to the LIS qualification:

Teaching, teaching, for us it's teaching, we do an awful lot; . . . understanding adult learning . . . [Library]

This ties in with the oft-stated preference that that new staff had a postgraduate LIS qualification because:

. . . a generalist degree to give you a grounding, and then the specialist as graduate . . . is ideal [Library].

Similarly, to work in Archives an archives or records management qualification was mostly considered necessary:

. . . everybody has got archival qualifications, usually a masters. I've got a master of arts and a diploma in archives administration but that just means I'm older, and there wasn't a masters to do [Archive].

However, a large Archives organisation reported:

so we look for the right qualities and the right skills, so people coming from another agency for example, that have worked with information records; they may transfer and we can actually upskill them [Archive].

Like the Librarians, there was an expressed preference for archives as a postgraduate qualification.

Thus, for the L and the A of GLAM, we see similar requirements for recognised courses and emerging changes (such as some flexibility for specialist positions and the increasing importance of additional qualifications in different disciplines in libraries and archives).

Museums and Galleries

All the museums and galleries reported that while more and more new staff had a Bachelors or Masters in museum or curatorial studies, and that these were useful, more important is a qualification in a specialty. Examples given were fine arts, design, anthropology, science (various specialities such as astronomy, earth or biological sciences and science communication), visual arts, classics and printmaking. For museum roles that involve research, 'PhD's are now coming to the fore'.

The arts is a lot more fluid than that I think . . . – I started out as a practicing artist and didn't go through any further studies beyond that [Art Museum]

Practical experience in museums is given at least as much credence as education and this has seen a culture of volunteering and internships as a pathway to employment arise in museums and converged institutions that is not apparent in libraries and archives:

. . .you can't learn how to be a curator by doing it from a textbook . . . and that's why we have a very active volunteers and internship program [Museum].

Converged Organisations

Not surprisingly the converged organisations require a mix of educational qualifications. Those working in the library or archives sections are generally required to have library or archives qualifications. However, it is expected that these are a foundation and that working in a converged institution:

. . .what they will do is take that and maybe it's the range of organisations they work for where they learn or expand on those skills . . . [Converged].

However, for curators and museum professionals working in converged institutions, the specialist knowledge (art, aircraft, etc.) is still predominantly important:

Sometimes it's easier to train them ourselves in the curatorial or preservation requirements than it is to train them in the specialist areas of interest [Converged].

Education in Summary

All participants agreed that the 'right' background education was necessary but while libraries and archives still essentially require a library and archives qualification, museums and galleries,

while appreciative of museums studies courses, still value more highly other specialist knowledge and practical skills often gained through volunteering. One other educational point that all GLAM organisations share is the importance of lifelong learning and the continuing development of knowledge and skills. Some of the larger organisations provide training on the job, others expect their staff to take responsibility themselves:

So the Theoretical Background is Useful, but Then You've Got to Keep Building [Archives]

So, is a very fine balance between having the research and the knowledge and the skills, but being able to apply them into a context which will be, ultimately be a successful project for the museum [Museum]

Discussion and Conclusion

In this section, we discuss the key themes identified and offer conclusions and recommendations for educators and the GLAM sector.

Managing Information?

Interestingly none of the participants expressed the knowledge and skills required to work in their organisation exclusively in terms of managing information – in fact, information was rarely mentioned as a separate term. We suggest that this is partly explained by information and the management of information being taken-for-granted in libraries and archives, and in fact, most of the accredited qualifications to work in libraries and archives include the word 'information' in some form.

However, in the museums sector 'information management' is taken-for-granted not because it is an assumed core skill or knowledge, but almost the antithesis. The requirement for specialist knowledge means that not all people (e.g. curators, educators) will have roles that encompass information management, although there would be an aspect of that in their work, for example, in registration and collection management. The interviews and analysis reported on in this paper show that in some cases, museums were not aware of the role that information management and managers could play, and in fact need to play, in, for example, digitisation and the management of digitised objects into the future.

Educating for GLAM

From our perspective as information educators, from the analysis above it appears that education in and about the museums sector could be further developed: much of what comprises the knowledge requirements they discussed in what we have categorised business and management, collections management, IT and the digital environment and data are actually taught in information management courses. Similarly, when mapping Museum Studies Curricula onto the 32 domain-specific ‘foundation knowledge, skills and attributes’ (Australian Library and Information Association (ALIA), 2015) that professional-entry programs are required to cover by the Australian Library and Information Association (ALIA), the Australian Society of Archivists (ASA) and Records and Information Management Professionals Australasia (RIMPA), varying levels of overlap were discovered (Hider & Carroll, 2018).

Information managers could have greater roles in museums beyond their traditional roles in museum libraries and archives, and they could do this without compromising or overtaking the specialist roles of museum curators, exhibitions staff and educators. We suggest a two-pronged approach to this challenge:

- (1) Courses designed for information managers which further contextualise the information work of museums, expanding their curriculum to encompass the breadth of GLAM activities, for example, the museum studies specialisation at Kent State University (Latham, 2015).
- (2) Courses designed for museum and gallery staff could reflect a curriculum-based approach to understanding information management, guided by elements of the ALIA/ASA/RIMPA Foundation Knowledge, Skills and Attributes relevant to Information Professionals working in Archives, Libraries and Records Management (Australian Library and Information Association (ALIA), 2015).

One potential ancillary outcome from this approach could result in the benefit of crossfertilisation and collaboration on all levels of academic practice (teaching, research and service) across the GLAM sector, leading to enhanced collaborative research opportunities and extended professional networks.

A Mutual Understanding

What we are proposing is a collaborative approach to education in the GLAM sector, where with mutual understanding graduates of LIS programs can bring information knowledge and skills to galleries and museums.

This has some resonance on another level, as on commencing analysis our first view was that if all the knowledge and skill requirements were addressed by one mega-course (for example) the curriculum would be very crowded. Indeed, (borrowing a term from the data science literature) a mega-course, if it was possible, might be aiming for a GLAM unicorn – instead we acknowledge that an individual who is capable of doing 'everything' would be a 'mythical beast' (Bertolucci, 2013; Kennan, 2017; Ramanathan, 2016).

However, what the findings are saying, and what is often implicit in much of the literature about GLAM education is not a convergence of all GLAM education, but instead, an awareness that there is an increasing need for information managers in museums as digitisation, crowdsourcing and social media use increase and collections grow and diversify. Thus, we make explicit that these information specialists are required in addition to, not instead of, the curatorial and domain specialist museum workers, and that such information managers would benefit from some understanding of museum studies – either incorporated in relevant courses in LIS schools and elsewhere, or as a separate specialisation such as offered at Kent State (Latham, 2015).

This study has approached the topic of GLAM knowledge and skills from the employers' perspective. Future work would include mapping this information to existing courses in museum studies, librarianship and archives, including any accreditation requirements, and alternative pathways including volunteering and internships. Also of interest would be an investigation of the cultural differences across the sector as understanding promotes collaboration.

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References

- The Archival Education and Research Institute (AERI), & Pluralizing the Archival Curriculum Group (PACG). (2011). Educating for the archival multiverse. *The American Archivist*, 74, 69–101.
- Australian Library and Information Association (ALIA). 2015. *Foundation knowledge, skills and attributes relevant to information professionals working in archives, libraries and records management*. Canberra: ALIA. Retrieved from <https://www.alia.org.au/foundation-knowledge-skills-and-attributes-relevant-information-professionals-working-archives>
- Australian Qualifications Framework Council. (2013). *Australian Qualifications Framework*. Australia: Canberra.
- Barrett, J. (2011). Protecting the past, safeguarding the future: Museum studies, the profession and museum practice in Australia. In D. Griffin & L. Paroissien (Eds.), *Understanding museums: Australian museums and museology* (pp. 1–8). Canberra: National Museum of Australia.
- Bastian, J. A. (2017). GLAMs, LAMs and archival perspectives. In H. MacNeil & T. Eastwood (Eds.), *Currents of archival thinking* (2nd ed. pp. 327–350). Santa Barbara, CA: Libraries Unlimited.
- Bertolucci, J. (2013). Are you recruiting a data scientist or a unicorn? *Information Week* <http://www.informationweek.com/big-data/big-data-analytics/are-you-recruiting-a-data-scientist-or-unicorn/d/d-id/899843>
- Bicknell, K. (2017). The future looks GLAMorous: From resource sharing to collaboration and convergence. *Online Searcher*, 41(4), 10–14.
- Bomar, W. F. (2012). *Graduate museum studies curricula: Meeting the needs of the field*. Doctor of Philosophy. Tuscaloosa, Alabama: The University of Alabama.
- Bowman, K. (2010). *Background paper for the AQF Council on generic skills*. Canberra, Australia: Australian Qualifications Framework Council.
- Cecez-Kecmanovic, D., & Kennan, M. A. (2018). The methodological landscape: Information systems and knowledge management. In K. Williamson & G. Johanson (Eds.), *Research methods: Information systems and contexts* (2nd ed. pp. 127–154). Cambridge, MA: Chandos.
- Cohen, L., Manion, L., & Morrison, K. (2011). *Research methods in education* (7th ed.). Oxford:Routledge.
- Cox, R. J., & Larsen, R. L. (2009). iSchools and archival studies. *Archival Science*, 8(4), 307–326.
- Dubuc, É. (2011). Museum and university mutations: The relationship between museum practices and museum studies in the era of interdisciplinarity, professionalisation, globalisation and new technologies. *Museum Management and Curatorship*, 26(5), 497–508.
- Duff, W. M., Carter, J., Cherry, J. M., MacNeil, H., & Howarth, L. C. (2013). From coexistence to convergence: Studying partnerships and collaboration among libraries, archives and museums. *Information Research: An International Electronic Journal*, 18(3). <http://InformationR.net/ir/18-3/paper585.html>
- Given, L. M., & McTavish, L. (2010). What's old is new again: The reconvergence of libraries, archives, and museums in the digital age. *The Library Quarterly*, 80(1), 7–32.

- Hedstrom, M., & King, J. L. (2004). On the LAM: Library, archive, and museum collections in the creation and maintenance of knowledge communities. In *Mapping innovation: Six depth studies*. Paris, France: Organization for Economic Co-operation and Development. <http://www.oecd.org/education/innovation-education/32126054.pdf/>
- Hider, P., & Carroll, M. (2018). *Prospects for a combined GLAM curriculum*. Paper presented at the VALA 2018, Melbourne, Australia.
- Howard, K., Partridge, H., Hughes, H., & Oliver, G. (2016). Passion trumps pay: A study of the future skills requirements of information professionals in galleries, libraries, archives and museums in Australia. *Information Research: An International Electronic Journal*, 21(2), n2.
- Kelly, S. (2018). From the bottom up: Convergence, professional identities, and LAM training. *The iJournal: Graduate Student Journal of the Faculty of Information*, 3(3), 1–8.
- Kennan, M. A. (2017). ‘In the eye of the beholder’: Knowledge and skills requirements for data professionals. *Information Research*, 22(4). <http://informationr.net/ir/22-4/rails/rails1601.html>
- Kim, J. (2012). Building rapport between LIS and museum studies. *Journal of Education for Library and Information Science*, 53(2), 149–161.
- Latham, K. (2015). Lumping, Splitting and the integration of museum studies with LIS. *Journal of Education for Library and Information Science Online*, 56(2), 130–140.
- Mansfield, T., Winter, C., Griffith, C., Dockerty, A., & Brown, T. (2014). Innovation study: Challenges and opportunities for Australia’s galleries, libraries, archives and museums: Australian centre for broadband innovation (ACBI), CSIRO and the smart services CRC. <https://apo.org.au/node/42371>
- Marty, P. F., & Twidale, M. B. (2011). Museum informatics across the curriculum: Ten years of preparing LIS students for careers transcending libraries, archives, and museums. *Journal of Education for Library and Information Science*, 52(1), 9–22.
- Peak, G. L. A. M. (n.d.). GLAM Peak. 2018, <http://www.digitalcollections.org.au/glam-peak>
- Ramanathan, A. (2016). The data science delusion *data science central* <http://www.datasciencecentral.com/m/blogpost?id=6448529%3ABlogPost%3A489994>
- Ray, J. (2009). Sharks, digital curation, and the education of information professionals. *Museum Management and Curatorship*, 24(4), 357–368.
- Ruge, A. (Ed.). (2008). *Museum professions: A European frame of reference*. Paris: ICOM.
- Saumure, K. (2008). Data saturation. In L. M. Given (Ed.), *The SAGE encyclopedia of qualitative research methods* (pp. 195–196). New York, NY: sage.
- Shu, F., & Mongeon, P. (2016). The evolution of iSchool movement (1988–2013): A bibliometric view. *Education for Information*, 32(4), 359–373.
- Trant, J. (2009). Emerging convergence? Thoughts on museums, archives, libraries, and professional training. *Museum Management and Curatorship*, 24(4), 369–387.
- Warren, E., & Matthews, G. (2018a). Public libraries, museums and physical convergence: Context, issues, opportunities: A literature review part 1. *Journal of Librarianship and Information Science*, Online, 1–14. doi:10.1177/0961000618769720
- Warren, E., & Matthews, G. (2018b). Public libraries, museums and physical convergence: Context, issues, opportunities: A literature review part 2. *Journal of Librarianship and Information Science*. doi:10.1177/0961000618769720

- Welsh, P. H. (2013). Preparing a new generation: Thoughts on contemporary museum studies training. *Museum Management and Curatorship*, 28(5), 436–454.
- Williams, S. L., & Simmons, J. E. (2007). Curriculum standards for museum studies programs. In S. L. Williams & C. A. Hawks (Eds.), *Museum studies: Perspectives and innovations* (pp. 129–150). Washington, DC: Society for the Preservation of Natural History Collections.