

A **Routledge** FreeBook

USER EXPERIENCE IN THE LIBRARY

In the Library Series

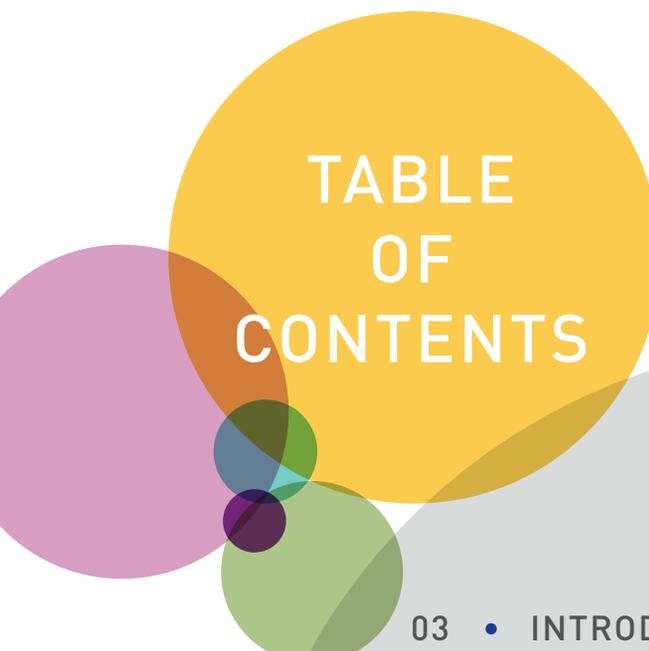
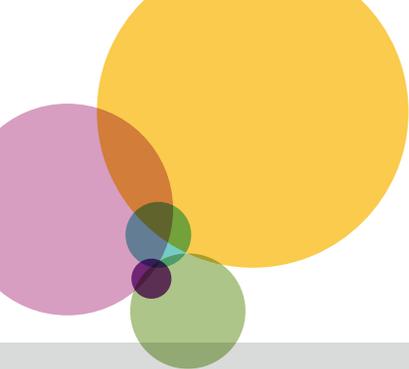


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INTRODUCTION

Modern librarians must grapple daily with questions of how best to implement innovative new services, while also maintaining and updating the old in the digital age. This FreeBook thus provides library practitioners and students of Library and Information Science (LIS) with a clear introduction to human-centered design, ethnographic methods, information access and exchange, as well as the use of physical space in the library – all of which is in light of the User Experience (UX) in the library.

This FreeBook features contributions from experts in their field, including:

Andy Priestner, the manager of Cambridge University's pioneering FutureLib innovation programme, employing user experience and design thinking to develop new library services. He is also the founder of the UX in Libraries Conference and provides training and consultancy on the subject.

Matt Borg, was an academic librarian at Sheffield Hallam University for fourteen years, during which time he was responsible for a new research-based approach to user experience. He is now a Solutions Expert at ProQuest's Ex Libris, where he works to bring new technology to libraries across Europe.

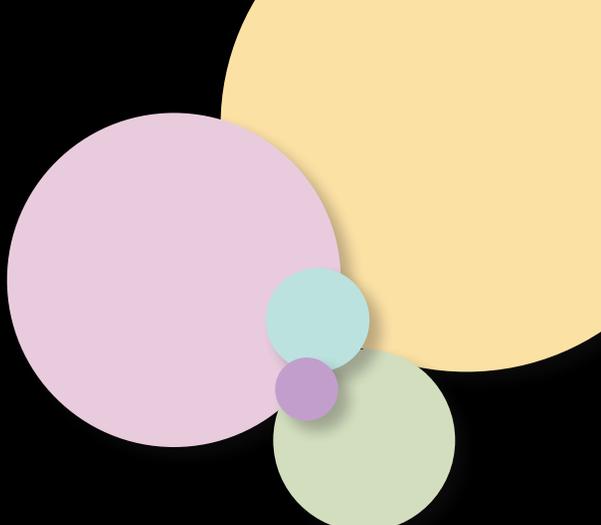
Graham Matthews, is Professor of Information Management at Loughborough University, UK, and has co-authored *Disaster Management in Archives, Libraries and Museums*, among many more.

Graham Walton, is Head of Planning and Resources, University Library and Honorary Research Fellow, Loughborough University, UK, and editor of the *New Review of Academic Librarianship*.

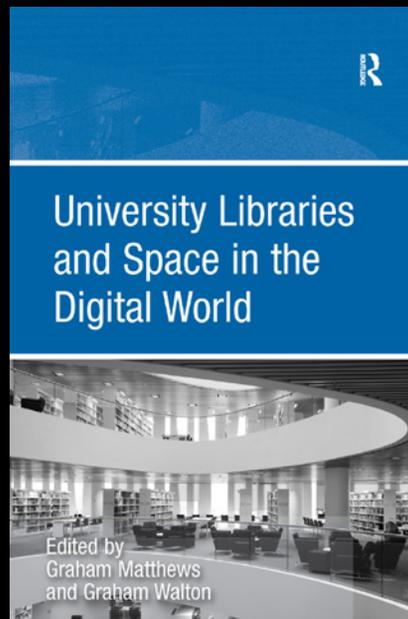
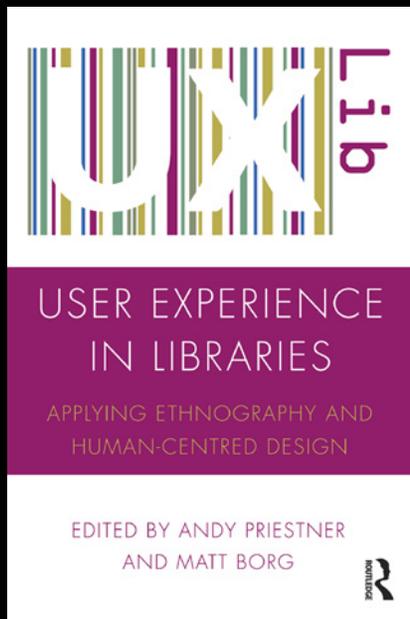
Judith Andrews, is Director of Library Services at the University of Central England, Birmingham, UK, and Director of the UCEEL Project (the University of Central England Electronic Library).

Derek Law, holds a chair in the Department of Computing and Information Science and is a member of the Centre for Digital Library Research at the University of Strathclyde, Scotland. He has also written extensively on the development of digital libraries, and the role of information in e-learning.

Note to readers: As you read through this FreeBook, you will notice that some excerpts reference other chapters in the book – please note that these are references to the original text and not the FreeBook. Footnotes and other references are not included. For a fully referenced version of each text, please see the published title.



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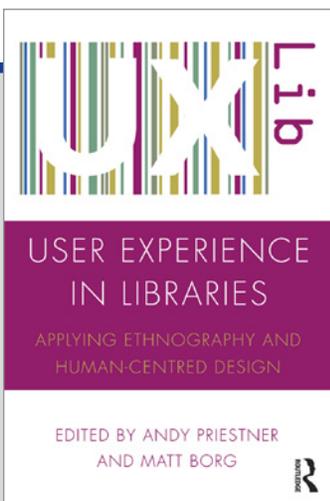
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CHAPTER

1

UNCOVERING COMPLEXITY AND DETAIL

THE UX PROPOSITION



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User Experience in Libraries

Edited by Andy Priestner and Matt Borg.

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UNCOVERING COMPLEXITY AND DETAIL

THE UX PROPOSITION

By Andy Priestner and Matt Borg

Excerpted from *User Experience in Libraries*

Today's library services are incredibly complex. Long gone are the days when librarians were only questioning how to arrange their stock and have it circulate appropriately amongst their users. Now we also grapple with striking the right balance between print and electronic media, seamlessly serving both physical and remote users, actively embracing technology and research data, and delivering effective teaching and learning. The list goes on, it is only getting longer and rarely, if ever, is anything removed from it. For every new service we offer, we have to consider how it will be implemented, to whom it will be promoted, and from where it will be accessed. In most cases, this means considering myriad approaches, time consuming tailoring of messages for different platforms and users, and offering a variety of alternative delivery methods. The efforts undertaken are immense and the services we deliver are fiendishly complicated to manage and sustain. Unfortunately, however, far fewer efforts are directed towards evaluating the success and efficacy of the services we provide: how well they meet user needs; whether user experience of them is good, bad, or average; and what values these touchpoints lead our users to ascribe to libraries.

There are probably a number of reasons why user experience (UX) of our spaces, services and products has been so neglected before now. One is simply that for the past 10 years and more many of us have just been trying to keep up with the pace of change, with the demands of ever-advancing technology and opportunity. While focused on these demands and the pursuit of relevance and understanding in an age where our purpose and value has to be constantly proved, we have perhaps paid less attention to the finer details and to the actual day-to-day experiences of the users of our services.

We librarians have always prided ourselves on excellent customer service and putting the user first, but most of us have never been trained to think about users to the level of detail that true UX research methods ask of us. Neither have we actually been trained in these methods. Surveys and questionnaires have been almost the only user research tool that most of us have been (self-)schooled in, and we have come to cling to them as if they were our sole means of gathering data from our user populations – a panacea for all library ills.

And this despite our open recognition that the traditional survey has many inherent flaws, not least of which are the facts that they are largely completed by pro-library users and that self-reporting is commonly understood to be unreliable. Our users have been telling us what they think we want to hear and we have been all too eager

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to lap it up and promote these results – and why wouldn't we, when we're so regularly faced with threats of cuts to our services and increasingly inaccurate perceptions of our value? Surveys aside, through automated means we have slavishly and accurately (we are librarians, after all) measured and collated quantitative statistics on footfall, holdings, loans and renewals, database use, e-book views and downloads and, more recently, social media followers and likes, but rarely have we embarked on any initiatives to look beyond the spreadsheet totals.

Most of us can anonymously follow the user from the start of their information search, see what they have searched for in the discovery system, observe what database they ended up in, and whether they opened a PDF. But we have no idea whether this was a successful search experience. Did that article view answer a pressing research question?

Similarly, a library gate stat does not mean that a user has made a valuable trip to our library space – the resource they needed might not have been available, they may have visited the wrong library, they may even have had a less than satisfactory encounter with a member of library staff, but we just don't know. And for the most part we have been quite content not to find out. This is perhaps because we have felt confident that our services were generally appreciated and as good as they could be (as evidenced by high survey scores), or conversely because we have not wanted to explore the messy detail as we know some procedures are difficult (some even baffle us librarians – transferring an e-book to a device, for instance!). It could also be because we don't have the time, staffing, or motivation to uncover yet more problems to deal with. There is no doubt a few of you reading this first chapter who have behaved more intrepidly and run the occasional focus group around a particular topic or undertaken usability studies of your library website, but for the most part, until recently, comprehensive attitudinal and behavioural user research of the type and scale that this book advocates has been almost non-existent. Most of us had zero concept of what taking an anthropological approach might look like or what an ethnographic or participatory research technique might be.

Whatever the explanation as to why we librarians have chosen not to delve too deeply into how our users are 'experiencing libraries' – in terms of actually employing anthropological and design research methods – there is a strong argument that this gap cannot be ignored for very much longer. In the academic environment 'student experience' is talked about more and more as central administration seeks to explore all aspects of university life through student eyes, identifying barriers and

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inconveniences and moments at which their experience is less than satisfactory. In the UK even the behemoth that is the National Student Survey now claims to want to assist institutions and student unions to 'better understand the experience of its students and to help inform change' (NSS, 2015). This does not get away from the fact that it is a survey and therefore limited in what it can hope to reveal, but it speaks at least of a wider appetite for experiential data. The student experience boom is an opportunity for librarians to prove their worth, not just in terms of services and resources, but in a pastoral and social sense too. UX methods can help us collect the evidence that reveals our crucial role in student lives that we have always known but rarely shared formally.

This deeper interest from universities in student experience is naturally in part monetary, due to competition to fill university places, but a shift in societal expectations of service has also played its part. The choices that new technology, online retail and social media have given us has markedly increased all of our expectations, not only of how much better a service should be and the range of products available to us, but also of our ability to influence and interact with service providers. It is more than just a shift from writing letters of complaint to writing reviews on TripAdvisor or sending disgruntled tweets; it is a fundamental change in how individuals perceive their power and how they expect to be treated. The opportunity to have one's voice heard is now actively anticipated, as is the immediacy and seamlessness of the platform through which one can do that.

Today's users are incredibly complex. Their information-seeking behaviours have changed, and their engagement with and perception of our services are vastly different. By adopting UX research techniques (by which we chiefly mean ethnography, usability, and service design) we can uncover the sort of users our libraries have today: users who do things in ways that we do not understand, that we find frustrating, or even condemn. The crucial point is that we are not our users, and just because they carry out tasks in a way that is alien to us does not mean that their way is wrong or broken. Instead, we need to see their approach as an opportunity to learn and discover. A user choosing to sit and photograph a 300-page reference only book with a smartphone, thereby effectively creating their own unwieldy e-book, might seem ludicrous to us when they alternatively could sit and read it in the library or photocopy it (within legal limits, naturally). However, it is a scenario that bears some analysis and would reveal significant issues around convenience and preferred study environments were follow-up explorations to take place.

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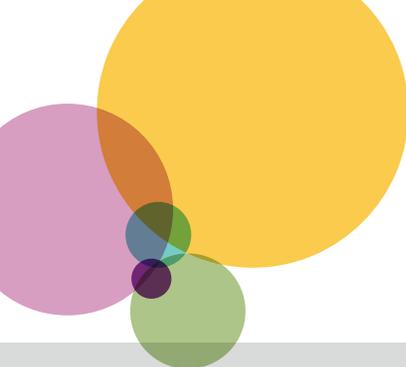
It is precisely scenarios like this that UX can help to inform, leading us in turn to better delivery solutions that accept rather than question user practices. In this way these research methods are as much about a mind-set as a practical approach, as they prompt us to acknowledge what is rather than how we think things *should be* or how people *should behave*. As this is the case, there is inherent in these methods a necessity for us to be less precious about the services we manage and less tempted to assume we know better than the user. This is not to say that sometimes

the user could be approaching a library research need in a better way – a way that we could have a hand in influencing – but that we should accept and learn from the behaviour we observe.

Observing other people, the crux of ethnography, is an activity at which many of us are naturally adept. Indeed, if you ask a roomful of librarians whether they enjoy people-watching, inevitably the hands of around three-quarters of the audience shoot up, and yet it does not naturally occur to us to undertake it as an illuminating research option in our libraries. Concentrated observation can uncover fascinating insights into how our users relate to library spaces, other users, and our resources. Of course as natural people-watchers we have to be careful not to record activities too subjectively, creating wild love affairs between users or back-stories suitable for soap operas, but rather seek to objectively note activities, users' preferred study styles, use of facilities, and other crucial behaviours.

It is our assertion that exploration of user behaviour of our spaces and services stands as perhaps the most completely neglected aspect of libraries today. And yet it is an endeavour that promises riches and insights that multitudinous library surveys could never seek to offer – detailing, as it can, how broken our signage and wayfinding is; how poorly laid out our spaces are; and, perhaps most significantly, what users are actually doing rather than what they tell us they are doing – and much, much more.

For far too long we have been relying on our intuition as information professionals, but our intuition can often be wrong. By participating in library spaces ourselves we can learn first-hand what it is like to be in that space as a library user, irritated by that constantly banging door, uncomfortable chair, or suffocating heat. Participant observation is just one of a wide array of ethnographic techniques that can help us to derive real, and often uncommunicated, user needs and perspectives that otherwise would have remained hidden. Like most other UX research it is time-consuming to undertake if done well (and enough data is gathered to inform changes), but the



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results – which reveal a more holistic and detailed picture of the study lives of our users – are unquestionably worth the investment.

There is far more to UX approaches and ethnography than observation of behaviour. It also involves seeking user attitudes and opinions, an activity with which we are more familiar and comfortable. However, our current approaches to attitudinal user research do not go nearly far enough. Directed storytelling, contextual enquiry, or unstructured in-depth interviews are all ethnographic research methods which provide a framework for us to listen and learn from our users, to understand why and when and how they do things. When supplemented by methods like diary studies, photo studies, or cultural probes through which students detail their study lives and the library's place in it, we have the opportunity to possess a more complete picture of user experience than ever before – and crucially, a picture that is evidence-based, gathered through internationally recognised research methods. Many of these methods are, of course, detailed within the chapters of this book.

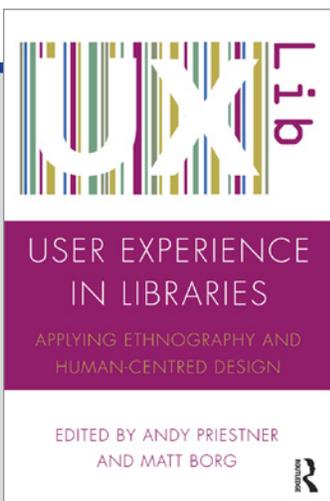
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CHAPTER

2

UX IN LIBRARIES LEAPING THE CHASM



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UX IN LIBRARIES

LEAPING THE CHASM

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As we have collated this book over the past 9 months, the value of UX research methods derived from the worlds of anthropology and design has only become more apparent and obvious to us. Better still, it is clear that we are by no means alone in these endeavours. Librarians all over the UK and beyond have started to see for themselves the riches that these techniques can offer, whether they are observing user behaviour, designing new spaces or products (often in direct collaboration with students), or simply connecting with their students more.

Rarely a day goes by without one of us hearing about a new library graffiti wall, a participatory design workshop, or a behavioural mapping project. And, what is more, the excitement around such approaches remains palpable.

Even by our own high standards the UX in Libraries (UXLibs) conference was a great success, igniting as it did interest in UX and perhaps most specifically ethnography in ways that we had not imagined. It has been hugely rewarding to hear that UXLibs attendees have not only gone back to their institutions and presented on what they had learned and run their own workshops, but have also organised regional meet-ups in order to 'keep the faith' and establish informal networks to elicit sharing and collaboration. A simple Twitter search on #uxlibs reveals a hashtag that stubbornly refused to die once our 3-day conference in March 2015 was over, while the number of post-conference reflective blogs was simply staggering. Plans are now afoot for UXLibs II, at which it is hoped delegates will be willing to share their stories of user experience research in action – the successes, the failures, and those unintended insights that these methods often provide. A UX in Libraries community now exists, so it only seems right that it comes together at least once a year.

It would be easy to overestimate the success of UXLibs in terms of reach and lasting impact, or indeed its significance in the library user experience landscape. The reality is that many people beyond our organising committee, speakers and delegates had already grasped the library UX nettle and recognised that it could be applied beyond website usability. Designing Better Libraries, for instance, is a US blog which began talking about user experience of libraries as far back as 2007 and is still going strong today (<http://dbl.lishost.org/blog/#.Vfso6m-zblU>). Aaron Schmidt, who has written about library user experience of spaces for many years, should also be namechecked here – he, together with Amanda Etches, wrote the highly practical and thought-provoking *Useful, Usable, Desirable* (2014). Their tome, and specifically the questions it encourages us to ask ourselves about our library touchpoints, should be required reading for librarians everywhere.

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Elsewhere, Matthew Reidsma collaborated with Aaron and Kyle Felker to found *Weave: The Journal of Library User Experience*, an open-access, peer-reviewed journal for library user experience professionals, in response to the dearth of professional literature in the area. Crucially it calls for a wider definition and application of UX in physical spaces and other contexts. We urge you to read and write for it. Reidsma, alongside several others, also moderates the library UX Twitter chat #litaUX, launched by the Library Information Technology Association (LITA) user experience interest group, which encourages discussion and sharing of challenges, successes, and techniques.

Also Twitter-based and well worth a follow is the fun @HogwartsUXLib account, which uses a Harry Potter lens to illuminate and explore library UX. And finally, although its user experience focus is more digital and features contributions from UX designers rather than anthropologists, we should mention the Designing for Digital conference, which grew out of the US association ER&L (Electronic Resources and Libraries) and looks set to become a mainstay of the US conference calendar. We do not seek to be comprehensive here – there’s a great collection of resources on Ned Potter’s blog that serves as a great place to start if you want more – but rather hope to illustrate that ‘the time is now’. There are more than enough of us engaging with library user experience to get it on the library profession’s radar and ensure it stays there.

As the UXLibs conference sought to demonstrate, vendors also need to be part of this conversation. If they are to provide the products our users need, then they must go beyond excellence in interface design and usability testing. Ideally vendors should be considering how their offering fits into a wider learning experience and research how today’s user behaviours and routines might directly influence the product design choices they make. Like us, vendors are ultimately seeking to offer services that users adopt which enhance and support their academic experience, but they can only achieve this if they conduct the necessary research and embrace these methodologies.

If we were to map library UX against a model like Moore’s Technology Adoption Life Cycle (1991), one could argue that UXLibs attendees are the ‘innovators’, and that they have returned to their home institutions to work with ‘early adopters’. It is important, however, not to underestimate the ‘big scary chasm’ that lies between these early adopters and the ‘early majority’ (see Figure 1). The latter may accept that users come first, but they will not necessarily accept that engaging with our users and understanding their motivations and experiences should be the building blocks of everything we undertake in our professional roles – that represents quite a leap across the chasm.

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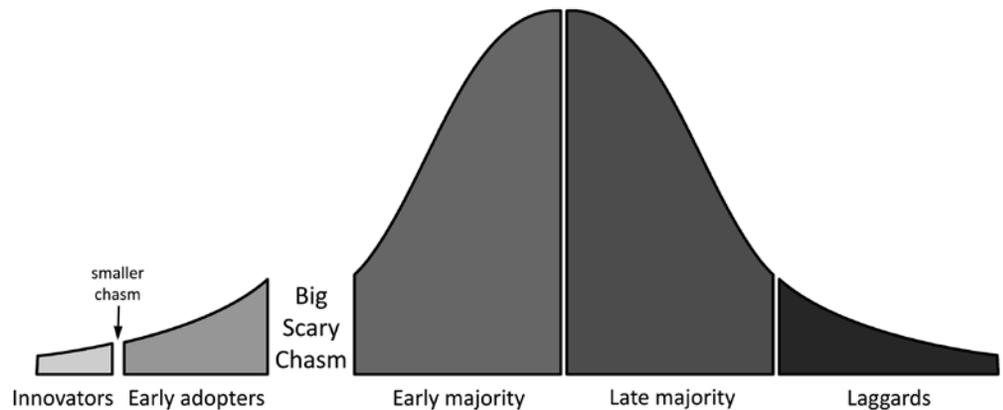


Figure 1 • Technology Adoption Life Cycle
Source: Adapted from Geoffrey Moore's *Crossing the Chasm* (1991).

Demonstrating the power of these techniques and the solid evidence of user experience they offer will help get the early majority on board, but we are still a long way off securing the understanding and attention of the 'late majority' and the 'laggards'. These latter groups probably consider the current explosion of interest in this type of research a fad that they can safely ignore, failing to recognise that we are actually embracing methods that have been around for almost a hundred years and that they operate libraries containing countless tomes describing these tried-and-tested techniques. Perhaps they just need to shelve in their social science research methods sections more regularly?

We have noted that many librarians have recognised that UX research techniques can easily be implemented on a small scale for discrete projects when insights are needed quickly, demonstrating how simple they are to understand and conduct (Margaret Westbury's case study emphasises this clearly). However, we have also observed their large-scale adoption. The fieldwork in Cambridge University's libraries that took place as part of the UXLibs conference proved very valuable beyond the event, validating ideas and concepts that had already started to be derived as part of FutureLib – a pan-Cambridge libraries innovation programme grounded in ethnographic research and human-centred design (see Chapters 8 and 9). One idea, presented by team 'Blue Steel', was for a tool that would connect students with available study spaces; another suggested by 'Purple Haze' was that of a well-designed library space in the centre of Cambridge with 'barista librarians' (the concept which eventually triumphed at the conference). In fact, both had already been more or less formally proposed as part of the FutureLib programme and are now set

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to become a reality. However, the research phase for the latter still has a long way to go and that will of course prove to be the most crucial stage of the process. What FutureLib has shown, like the participatory design work undertaken at Manchester (detailed in Chapter 11), is that these UX efforts can be employed on a large scale. They can be implemented institution-wide if senior management and governing bodies choose to resource them.

An issue that is regularly discussed when adoption of UX techniques is on the table is whether the research should only be conducted by anthropologists and/or human-centred designers, or whether librarians can fit the bill themselves. There are solid arguments on both sides. Trained anthropologists like Donna Lanclos and Andrew Asher live and breathe ethnographic method and possess a rare understanding of its application in the context of libraries. Rarer still is the situation of their employment as 'library ethnographers' funded by university libraries in the US. While many UK libraries have certainly employed anthropologists for short-term projects, there do not appear to be many permanently funded equivalents of Donna and Andrew. We therefore do not have access to the same on-tap talent and are relying on anthropologists who instead have to hit the ground running and understand all things 'library' in the short space of time for which they are engaged. Cambridge University Library chose to employ a designer as Head of Innovation (Paul-Jervis Heath) in an attempt to ensure that a culture of continuous and quick innovation, underpinned by ethnography and human-centred design, might be embraced within the institution. It was a bold move that served to further ignite the existing local interest in ethnography in Cambridge libraries, and although Paul moved on to set up his own design consultancy, his employment helped embed an appreciation of the value of these methods and their position high up on Cambridge University Library's strategic agenda, and in turn led to the birth of the current FutureLib programme.

Donna, Andrew and Paul (and we are certain there must be others not on our radar) are all examples of UX experts whose employment has ensured that anthropological approaches are being very taken seriously at a high level within their respective universities, but the model is unusual. Perhaps it is a situation that will change as the burgeoning interest in user experience grows, but if it does not, is it up to librarians to fill the gap? And if so, are we up to the challenge? Librarians are naturally passionate about meeting user need and, in line with Ranganathan, would always consider their users as their number one priority. In terms of motivation alone, then, the embracing of research methods to attain a deeper understanding of the user experience of our libraries seems an obvious next step. However, as we

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explored in Chapter 1, this will involve putting much less store by our intuition and focusing on the complex needs and behaviours of our users derived from actual research. This means trying to get into the shoes of our users more and, if possible, participating in their environment rather than just behaving as detached observers. It involves accepting that we are not our users and accepting that their way of fulfilling a task may seem alien to us, or even foolish, but that it doesn't make their methods broken or wrong. Instead we should be acknowledging their behaviour and actively seeking to learn from it. This isn't to say we shouldn't try to influence this behaviour by offering better designed touchpoints (those moments when users interact with us), but we help no one, including ourselves, by simply dismissing and condemning it.

As for the skills needed to carry out the techniques themselves, librarians are arguably more than capable of conducting this type of research; provided, that is, that they have sufficient grounding in, and understanding of, its purpose and value. This purpose and value, put simply, as we hope the chapters of this book have demonstrated, is to uncover a more holistic and complex picture of our users' lives; a picture that crucially recognises the library as part of a wider research landscape or social taskscape. It is about a hunger for detail, for data, for information... Who better then, then librarians, to take on this task?

Perhaps the biggest barrier to adoption of user experience research is the perceived or actual lack of existing resource and capacity to undertake this type of research. No one would disagree that to do this work well significant time must be devoted to the activity, but we would argue strongly that it is time very well spent. User experience research promises to reward a library service, and more specifically its users, far more than many of the tasks we currently undertake. Tasks which it could be argued do not directly improve the experience of our users, such as constructing collection development policies, updating largely unread web pages, conducting detailed cataloguing, or the taking of statistics. These and other activities like them may indirectly benefit our users, but are they more valuable than time allocated to actual research into user experience? Many larger libraries have user research teams that explore the usability of their digital collections and resources (e.g. Stanford), but how many have staff dedicated to exploring how users find and behave in our spaces or how the library fits into their research process? User research should have a far broader definition than it currently enjoys, and be conducted by staff members dedicated to exploring this behaviour and experience beyond the use of digital resources. It is a research trajectory that could be very beneficially applied and

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feasibly lead us to reprioritise the work we do and the choices we currently make as librarians, refining and ensuring our ongoing relevance to our users and fellow support departments. We have the opportunity to be in the vanguard here – leading the way just as we have done in recent years with social media, showing our colleagues in student services, IT, and employability how UX research is actually done and the rich information and evidence that it offers.

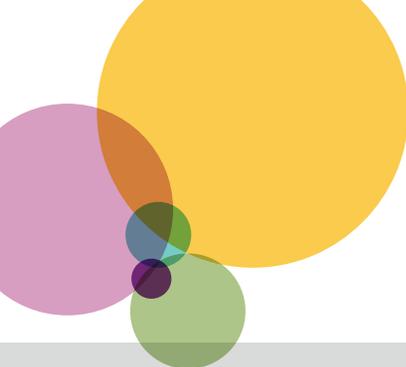
In today's highly complex, multi-layered world of learning and information it is sorely tempting for us to seek black-and-white, quantifiable answers to the many problems and issues set out before us – to seize upon solutions that will turn situations around, and sometimes to just seize upon one absolute solution as the answer we need. UX research methods do not offer this. Indeed, they are often not so much about providing solutions as helping us to formulate and ask better questions – questions that we need to ask if we have any hope of understanding the behaviours, choices and culture of our users. We need methods that will help us to illuminate that complexity – to consider our users and their learning landscapes, of which libraries are only a part, in more detail than we have ever considered before.

No doubt we will encounter more and more discussion, analysis and debate about the value and application of user experience research in libraries. It will be a topic for the literature for many years to come. If past experience is anything to go by, we will be in danger of overanalysing the implications in terms of policy, in terms of senior management, in terms of everyday practice before we've even begun. So let's just pause to reflect here and now on what this is all really about: it is about observing and listening to our users; it is about understanding them in richer ways than we have previously encountered; it is about seeking a deeper and wider meaning of libraries and learning. Whether you and your library colleagues are on board with these methods yet or not, enthusiasm for ethnographic approaches, usability research and human-centred design is certainly growing, and we feel sure that this can only lead to a superior user experience of libraries – and that just has to be the best objective of them all.

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CHAPTER

3

SHARING SPACE IN UNIVERSITY LIBRARIES

R

University Libraries
and Space in the
Digital World



Edited by
Graham Matthews
and Graham Walton

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University Libraries and Space in the Digital World

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SHARING SPACE IN UNIVERSITY LIBRARIES

By Leo Appleton

Excerpted from *University Libraries and Space in the Digital World*

INTRODUCTION

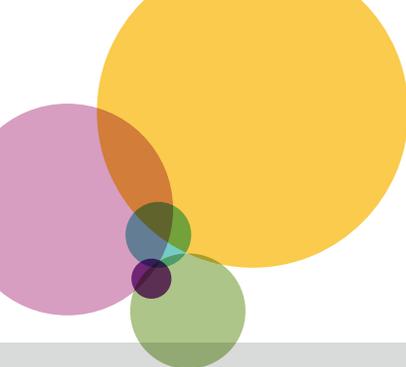
Discussion and debate around academic library space has traditionally centred on how effective the library is with regards to teaching and learning, and much has been written about the pedagogic drivers for developing blended learning spaces and responding to students' pedagogic demands for service developments (Black and Roberts, 2006, Walton 2006, Waxman et al. 2007). Indeed, such debate has more recently taken on a new direction in the format of the Learning Landscape. Dugdale (2009) suggests that the 'Learning Landscape approach is about leveraging the power of planning for interaction at the campus level' and that 'user engagement' is key to this planned use of space. These two concepts, those of student engagement and the efficient use of library space within an institutional context are now well accepted within the library and learning space design discussions.

However, 'the increasingly diverse offering of global higher education effectively means that there is no longer a single prescription or model which represents the learning environment [pedagogy and infrastructure] in the 21st century' (Neary et al. 2010: 4). This therefore suggests that the learning environment has become more holistic in terms of what the landscape (or space) offers in terms of infrastructure, not just pedagogy. The communities operating within them now represent a whole plethora of academic and pastoral support and services which contribute to the 'whole' student experience.

With this in mind, academic libraries have increasingly developed themselves in becoming far more than a traditional library service.

Too many libraries look as enticing as a warehouse and offer study spaces that look more like a solitary cell at a correctional facility than a Cistercian idea of monastic simplicity. Cistercians at least had an eye for design and kept the place clean. Too many academic libraries are simply unwelcoming, uninspiring, shabby, and poorly adapted to learning. (Fister 2009)

In response to this, Massis (2010) suggests that in order to address this archaic image of the academic library, the library itself has developed into something which now offers an abundance of new and advanced services in addition to traditional services. Massis claims that it is the library that is making available a number of essential student services such as writing centres, counselling and advice services, tutoring, disability services, technology-enhanced spaces, laptop lending services, presentation areas, group and individual study areas, etc.



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This may well be the case, and on inspection one will probably now find many different types of academic and support services available within the academic library. There is a need to unpick some of the driving forces behind this. The simple perspective could be to see it as the result of a library initiative to raise the profile and image of the library itself! The reasons for this relatively new phenomenon of libraries offering a variety of services vary. Many are pedagogical, others are driven by student experience initiatives or for efficiencies resulting from changes to organizational structure in the form of service mergers or convergences.

It is difficult to discuss the sharing of academic library space without at least acknowledging that it is the practice of convergence, co-location, or, indeed, 'superconvergence' that has led to such practice. Terry Hanson (2005) neatly brings together a collection of case studies of different examples of converged academic support services in universities, all of which involve the university library and usually one or more of the IT Support, Network, Computing, or Media services offered at the institution coming together in some sort of formal or organizational convergence.

Hanson claims that convergence is not a new phenomenon, but has been in existence for over 20 years (Hanson 2005: 1). Convergence in this instance is described as 'the situation in which the library and academic computing services, with or without other services, are brought together for managerial purposes under a common full-time executive director generally recruited from a professional information background' (Field 2005: 10). This suggests, therefore, that librarians, libraries, and information services have been subject to this 'convergence' happening to them. This is important to remember when talking about 'sharing space', as it can imply that it is actually the library sharing its space with the other converged service areas.

When convergence takes place the library is regarded as the obvious choice in which to house the new converged IT and Library department (or whatever the convergence looks like). If there is no obvious strategic driver for convergence, then it may appear to the library and the library staff that they are sharing *their* space with other areas. However, an early comparison between Liverpool John Moores University and Roehampton University, both in England, suggests that operational efficiencies were the drivers behind their particular convergence, and therefore the ultimate blending of space in which services are delivered (Sykes and Gerrard 1997). In many instances this 'marriage' of services has sustained to the extent that the stakeholders involved would no longer see themselves as sharing space nor even being co-located. The integration of IT departments and libraries within higher education institutions is now

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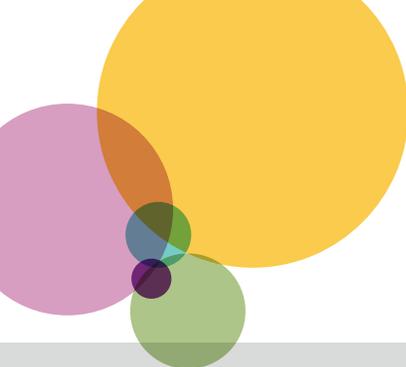
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commonplace and widely accepted, although individual institutions may have their own reasons for not conforming to this (Foster 2006). Baty (2007) uses a collaborative research centre example to explain how initiatives designed to bring together colleagues and services within a single Higher Education Institution usually have the best of partnership-oriented intentions, but in reality are seldom achieved easily.

It is the more recent discussions regarding the concepts of super-convergence and co-location of services (Heseltine et al. 2009) that begin to open up ideas of the sharing of space in a more institutional and strategic context. Increasingly, institutions are developing holistic approaches to supporting students at university, which in turn means the development of new convergences and new spaces from which services are delivered (Roberts and Stewart 2008). This chapter will go on to explore some of the models and drivers behind the sharing of space within universities, and where libraries are engaged in this practice. Included are some current examples of where this has occurred in UK university libraries.

THE COMMODITY OF SPACE WITHIN THE UNIVERSITY

Space is at a premium in any university, and effective and efficient use of space within any institution is encouraged. Many universities operate with decentralized organizational structures. That is to say that the university is divided into individual faculties and schools, and individual support departments, such as the library, which all have their own levels of autonomy and self-governance. This is quite typical of an old university, with a traditional faculty structure, or even a new university, which may have previously been a polytechnic and therefore made up of constituent schools and colleges. The nature of such decentralized institutions is a need for support services to have a strong identity (e.g. the Library, Student Services, Welfare Services, Estates Departments, Human Resources, Finance, etc.). With a unique identity comes a need for a home, which is why individual service areas, and indeed individual schools and faculties, like to have their own space. These boundaries have obviously been broken down over the years as market forces, economics, and student expectations have strategically allowed for this. An appropriate example of this would be where a library has converged with an IT support department, as identified above. It now seamlessly operates from within the same space (usually a library or learning resource centre) and from behind the same service point or help desk. However, it is not the sharing of space within this traditional convergence that is the focus of this chapter. The increasing practice of super-convergence and mass co-location has led the partners involved to seriously start to question who owned the space in the first instance. For



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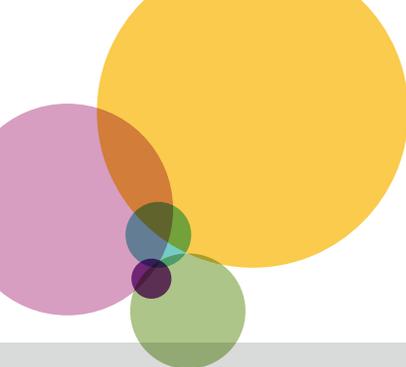
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the most part, it still remains the case that most areas, departments, or faculties within a university are very precious about their space. Fundamentally, all areas would advocate working in partnership and collaborating with each other, but they tend not to like giving up or sharing their space! Institutional drive and strategy is key to successful space sharing in a university, as is clarity of the reasons as to why space needs to be shared and jointly owned by more than one service area.

INSTITUTIONAL STRATEGIES

Space within a university is usually owned by the institution. In theory the institutional strategy and strategic goals should drive the use of its space. Similarly, this should drive the organizational structure of the university, with schools, faculties, and academic and support services being developed and structured in order to achieve the institution's vision, goals, and strategic aims. Good practice within an institution would involve a space management approach to delivering the university's objectives (Education and Learning in Wales 2002). Where this is the case, co-location is regarded as a real solution to meeting strategic space requirements. Cognate groups of services or academic departments can be placed together in order to provide efficiencies and enhance the student experience at the same time.

Invariably, the academic and faculty structure of the institution will be shaped by the teaching, learning, and research offer. It is these areas which will form the majority of missions of UK universities. All supporting areas of the university should theoretically be aligned to this (Davis and Somerville 2006), and partnerships and collaborations should develop in order to achieve the common goal. However, experience shows that this does not necessarily happen in practice. Franklin (2008) talks about how too many academic libraries develop strategies outside of institutional goals and mission and therefore become very inward facing, basing themselves on library functions rather than on the core mission of their institution. It is this institution-wide approach which usually brings about the most effective and most responsive change, which can often lead to organizational change within the university. The position of the library within the university is often affected by such change. One of the major cultural shifts in universities over the last few years has been the increased emphasis on students. The student experience is now at the centre of university strategies, and it is noticeable that 'institutions are aware that they must respond positively to the increasingly consumerist view of higher education' (Payne 2005: 202). Academic library services, by their nature, have traditionally been student facing and in a position to influence 'student experience activity' within their home institution.



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Where strategic and institutional change is occurring within universities and the focus is directed more and more upon the student experience, the practice of space sharing and co-location within the institution is becoming increasingly common. What is more so, it is often the university library, learning commons, or learning resource centre as an already existing purpose-built, large-scale, student-facing space that is the 'shared space'. Through a case study approach (primarily UK based), this chapter will go on to present some working examples of the drivers and models behind space sharing in university libraries, as well as illustrating some of the benefits and disadvantages of particular models.

DRIVERS FOR SHARING SPACE

One of the most common drivers for the new super-convergences is that of the student experience. As the student is ever-increasingly being seen as the consumer who makes an informed choice as to the university that he or she may wish to attend, student experience becomes more and more of a strategic driver. The student does not need to discern between university departments, nor is it desirable for the student to be faced with different levels of service, customer care, and access models depending upon which part of the university he or she is interacting with. 'Effective student support is not the province of one particular group of staff or department. It is a shared commitment which relies on good working relationships and effective communication' (Aynsley-Smith 2002).

At Liverpool John Moores University, it is the institutional strategic drive for enhancing and optimizing the student experience that has been fundamental in some quite radical changes to organizational structures and space planning within the institution (Appleton 2010). After a thorough review of the student experience, the 'super-converged' Library and Student Support department was formed and with it a focused redevelopment of the Learning Resource Centres so that they were fit for purpose to deliver the new holistic student support services. This was continually articulated throughout the development and implementation of the new service, so that all those involved were clear as to why the changes were occurring. The resulting space is now used to deliver all student administration services, library and computing services, welfare, employability, and careers services. The space shared effectively, but not owned by any one department. Instead the focus is on the student, and the space is regarded as being student owned.

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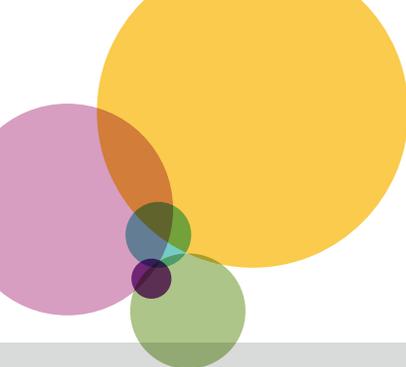
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Being able to access a wide portfolio of student support services within a common set of service levels and standards through locating them within a single directorate is an excellent means of achieving this. No more so is this the case than at the University of Northumbria, England, where the University's commitment to delivering an excellent student experience was responsible for the creation of a new department called Academic Services. Academic Services comprises: Student and Programme Administration, Quality Support and Collaborative Ventures, Planning and Resources, Academic Library Services, Content Services and Library Systems, Student Support and Wellbeing, and JISC infoNET. The Director of Library and Learning Services, Jane Core, as the new Director of Academic Services was charged with pulling together this super-convergence and developing the spaces from which the new converged services were to be delivered. The Library had already developed a very robust and effective Learner Support Model (Core and Hordon 2010) and had achieved the Customer Service Excellence Award; they were already perceived as being champions of the student experience and well placed to deliver the corporate student experience strategy working in a new partnership with other services which impact upon the quality of the student learning experience. A shared customer service ethos is therefore integral to developing a frontline Library and Student Support and Wellbeing service model which can be offered from the Library's welcome desk service, open 24 hours a day (Kilner 2006). This service will, in time, be extended to deliver a triage model of enquiries and appointment systems across the whole portfolio of services offered through Academic Services.

Southampton Solent University, England, has identified two drivers for their shared space situation. Like Northumbria they had a strategic drive to enhance the student experience, but had also identified a need to make efficiencies in use of space and, from a structural perspective, to ensure that there was no overlap in seamless delivery between different teams.

The University of Bradford, and the University of Huddersfield, both in England, provide evidence of a slightly different driver – that of maximizing the use of existing space in order to enhance the student experience. In both instances, rather than new library building projects, the existing library space has been reviewed and re-purposed. This has been to facilitate new and exciting organizational structures and collaborations which then positively influence the student experience. In the case of the University of Huddersfield, the building which was formerly the University Library and Computing Centre has been converted so that it now co-locates all student-facing services from across the campus, including library and computing services,



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welfare, immigration, disability support, careers, employability, student finance, admissions and records, and the international office. This is a genuine example of a university library sharing its space with other support departments, but it has brought with it some interesting management challenges.

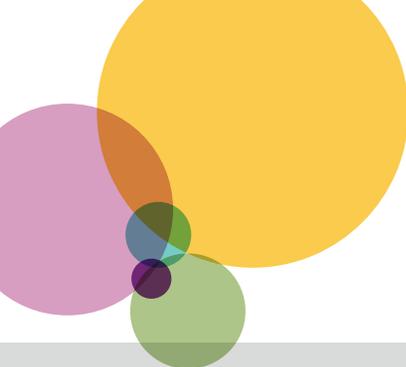
At the University of Bradford, the JB Priestley Library has become part of a much bigger physical space, 'Student Central', which links the library building with other student-facing buildings and services, such as careers, disability support, teaching space, and the student union via a 'learning mall'. The driver here is still that of space maximization, but the model deployed in order to fulfil it is quite different to that of the University of Huddersfield.

MODELS OF SHARED SPACE

At the University of Huddersfield, the model is quite deliberately one of co-location. The previously existing library space has been completely re-purposed to become the university's 'Student Centre', in which all services, including library and computing support, are located, and this has been a real success with the students. All the services within the Student Centre, however, have their own director, each of whom has slightly different strategic objectives. When the Student Centre was first created the only common ground between the separate services was literally the physical sharing of space. Collaboration is now much more established and achieved through a Student Centre steering group.

At the University of Bradford, however, the repurposing of the student space and the formation of 'Student Central' has allowed for a part convergence/part co-location model. The super-converged directorate of Learner Support Services includes library, computing, counselling, disability, and careers services within it (Marsh 2008). Student Central houses all these services along with the university's shops, some teaching spaces, the student union building, the welfare centre, and a boardroom shared between all those located within Student Central. A management role has emerged to ensure consistent and seamless customer services from all the services and facilities within Student Central. This is done through a Centre Management Team and the Learning Space Champions, all of whom report into the Customer Services area.

Another super-converged model is evident at Southampton Solent University, where a single super service area for Learning and Information Services incorporates the departments of Library and Learning Services, ICT, Student Services, and Web



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Development and Learning Technology. However, these teams are managed separately within the area, yet all deliver services from within the same library building (with service desks in different parts of the building providing a blend between convergence and co-location). They have already identified the benefits of this model in that students now get a wealth of services within the same spaces, and are looking to extend this further by inviting in other student-facing services such as employability. What is particularly interesting to note is that through this new co-location model staff teams have been able to work more closely with each other and have gained valuable insight into some of the university's strategic priorities (for example, their employability agenda).

BENEFITS OF SHARING SPACE

The benefits identified with all the above models and drivers for sharing university library space with other support departments are common across all the case studies and fall into two main categories.

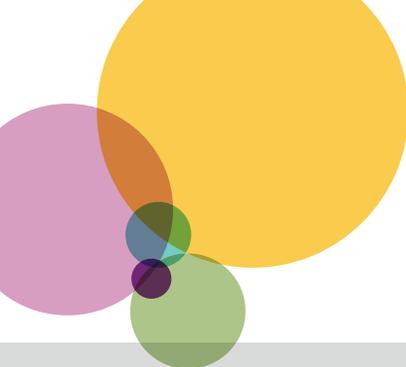
ONE-STOP SHOP

Seamless access is provided to student- and customer-facing support services within a single space. The student does not need to understand the university's organizational structure, nor does the student need to go to several different locations across campus in order to receive several (often linked) services. Examples where this works particularly well (e.g. University of Bradford) mean that there is central control over the customer services functions and standards, so that the student gets the most consistent and seamless service possible.

THE HOLISTIC UNIVERSITY SUPPORT SERVICE

Staff working in centrally located student support buildings offering a variety of services are able to see the bigger, more holistic picture of how the university operates and how the student needs to interact with services. All case studies provide evidence of library staff and staff from other converged or co-located services having a greater understanding of each other's work and roles with regards to the student, and multi-skilled staff are evolving in these spaces who are able to deal with or effectively refer an increasing variety of student support enquiries.

Where strategic objectives behind organizational restructures and changes are made clear, the benefits of sharing space far outweigh any issues or disadvantages.



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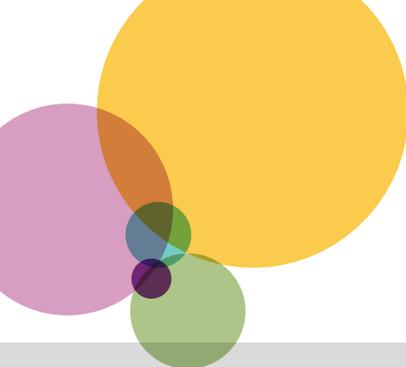
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However, clarity of these goals and objectives regarding the student experience is fundamental to its success. Where change appears to happen in an uninformed manner, and space ends up being reluctantly shared, the repercussions can manifest themselves in a number of ways.

EFFICIENCIES

It is acknowledged that the student experience is the key driver behind many of the initiatives. Another factor is the need to consider the cost and resource efficiencies that sharing space enables in the university library and indeed the university as a whole. Amalgamating different professional disciplines together into a single shared space can quite naturally create space savings in the areas which were previously occupied by the constituent service areas. In the case of Liverpool John Moores University, bringing together Library, IT Support, Student Administration, and Programme Administration staff enabled much University accommodation to be made available for further development (Appleton, 2010). However, rather than realize a financial efficiency in redeploying these spaces, they were repurposed as part of the student experience agenda. All spaces formerly occupied by the professional services within Library and Student Support were redeveloped as student spaces, therefore representing resource efficiencies of a slightly different nature. Franklin (2008) comments on how most academic libraries are organized around library activities rather than the primary missions of their college or university. Library strategy (including space strategy) needs to be aligned to the university's academic plan (Dillon 2008). If the student experience is a high priority on the university's agenda, then the use of and the sharing of library space needs to be developed. This paves the way for further creative thinking about use of space as a whole to enhance the student experience.

The other efficiency which may be gained from sharing space is that of staff costs. As has been discussed in the examples provided throughout this chapter, libraries sharing space is a direct result of the demand to consolidate student-centred services into a single space or service area. With this may come the consolidation of processes and procedures and subsequent multi-skilling of staff so that they are in a position to be able to deal with and refer a wider variety of student enquiries than they were previously. Where this occurs, the strategic development of the new department or departments operating from the shared spaces has to be fully considered alongside the professional identities and boundaries of staff working in those services.



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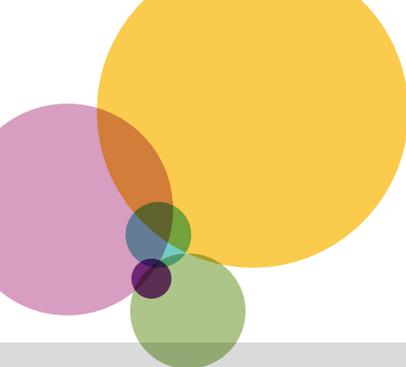
BARRIERS AND CHALLENGES

The disadvantages and barriers identified with the new models of delivering student-facing services differ between institutions. The development of services at the University of Huddersfield meant a large reduction in the publicly accessible library space as the physical library made way for the other co-located services. This included reducing the 24-hour computer provision, which was seen as an acceptable compromise in order to develop the new Student Centre initiative. The University of Northumbria identifies the actual lack of space and physical layout of existing services as a particular barrier to fully enabling the desired service model. The Academic Services department delivers consistent and excellent customer-facing services from its Library Welcome desk. This is also present in its telephone and virtual services, as well as in Student Support and Wellbeing and Careers Centres. Due to lack of available space it is still not able to deliver its full portfolio of support from a single physical service point, although this has now become a strategic objective and is anticipated to be the case in the future.

At Southampton Solent University, the internal organizational structure and the lack of opportunity for staff restructure is a barrier. Staff doing similar technical support roles (i.e. ICT support, and that of printing support) are on different grades and cannot realistically converge.

All the case studies identify different service levels and lines of reporting as being clear disadvantages to these models. For example, where services are collocated and are working to different service levels and standards there will always be confusion amongst students. It will be unclear what is offered exactly where and when, and even more so if the services are being delivered from the same space. In the case of one of the co-location models, all the constituent service points initially operated to different opening hours, with one particular service only opening for two hours a day. Opening hours have since been standardized, but until this had happened the disparity of service hours offered in fact had a negative impact on those service points which opened longer hours. This is because staff attempted to deal with enquiries outside their particular area of expertise. In cases like this there are also quality assurance issues, with some customer-facing services having attained external accreditation for excellence in customer service yet are working immediately alongside service teams who cannot assure the same quality.

Quality assurance in general can also prove to be a challenge. There is no single standard model of co-location, super-convergence, or library space sharing. This



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makes performance measurement and benchmarking problematic in that there is no single set of measures or benchmarking groups for such a service. In the cases of Liverpool John Moores University and Southampton Solent University, such are the nature of their services that using instruments such as statistics and benchmark data are becoming less and less relevant for today's library management requirements. The library function of each of the departments in question is now just one constituent part of the business of the service, and it is difficult to quantify the space in which 'library' services are delivered.

Within the new space-sharing paradigm, the identity of the actual 'library' can also prove to be an issue. Where a building contains a library and several other services, there can be a tendency for it to get lost amidst the array of services offered within the building. However, it could be argued that this is an observation from the library staff working within these environments. Externally, from the students' perspective, as long as they know how to find and access the services that they need, then library identity is unimportant.

CONCLUSION

This chapter has looked at some of the various manifestations of sharing space in academic libraries. There are several examples of how space sharing works, and this chapter has made use of some of the examples currently being practised in UK higher education institutions. It has not been possible to address the issue of sharing space without first having acknowledged that it is organizational structures and the convergence of departments and services which leads to space-sharing practices. This chapter has identified some of the drivers for organizational change and restructuring, and at the forefront of these is student experience. Any driver for change then requires a working model in which to facilitate the changes, and two in particular, 'super-convergence' and 'co-location', seem to be becoming more and more common within UK universities.

The models and drivers identified then affect the space planning that goes into the operations of the institution's student-facing services. This often requires new ways of thinking about space and identifying which services, facilities, and resources can be offered within them. Space is a valuable commodity within universities and optimizing its use is key to space planning, even more so when it can be contained within a strategic student experience objective. For these reasons, there is no set pattern with regards to how space is facilitated and shared within university libraries.

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The chapter contains several different examples, and illustrates some of the advantages and also issues arising from space sharing. The one generalization that can be concluded is that it is the university's strategic driver for change which creates the demand for the more flexible uses of space within academic libraries and the space-sharing practices which are seen today.

NOTE

1. Customer Service Excellence is the government standard for effective and excellent customer services delivery: www.customerserviceexcellence.uk.com [accessed 13 July 2012].

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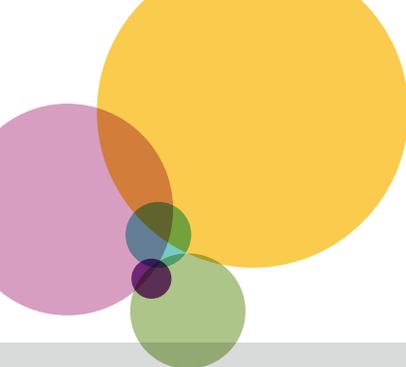
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CHAPTER

4

REIMAGINING SPACE FOR LEARNING IN THE UNIVERSITY LIBRARY

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University Libraries
and Space in the
Digital World



Edited by
Graham Matthews
and Graham Walton

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By Peter Jamieson

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INTRODUCTION

The central campus library is a barometer of the educational character of a higher education institution. The physical form and architectural quality of the library says much about a university's understanding of itself as a higher education institution and how it understands learning (Edwards 2000). Within the library the quality, quantity, and allocation of the physical space reveals the institution's priorities in regard to core activities such as research, teaching, and undergraduate learning (Strange and Banning 2001).

The idea of the campus library as a space for student-centred learning (Jamieson 2005, 2009) is driving current efforts to reimagine its physical form and function. In practical terms, the library is 'a key provider of learning space on campus' (Webster 2009: 33). Chism believes 'we can facilitate deeper and richer learning when we design spaces with learning in mind' (Van Note Chism 2006: 1). Exploring the notion of 'libraries designed for learning', Bennett says librarians and other university staff responsible for campus construction and renovation projects need to ask how can library space advance the 'core learning and teaching missions of their institutions' (2003: 1).

The development of the university library specifically as a space to facilitate a more student-centred pedagogy is occurring in the context of the broader transformation of the entire campus as a learning environment (Kenney et al. 2005). This transition requires the university to articulate more explicitly than ever before its idea of learning and how it understands that process to take place within and outside the classroom. This chapter will consider how the changing idea of on-campus learning is shaping the contemporary university library as a space for student-centred learning, and will draw on the author's experience as the Learning Environment Designer in a key project at The University of Melbourne to create an integrated student learning precinct.

THE UNIVERSITY CAMPUS AND THE IDEA OF LEARNING

The idea of the academic 'scholar' is deeply linked to understanding about what it means to 'learn' in the university campus setting. Major fields of disciplinary knowledge in the university continue to be viewed as the creation of individual academics contributing separately to the advancement of knowledge through largely private activity. From this perspective, the academic as scholar (when not teaching) is engaged in a personal intellectual undertaking. This involves the academic in quiet,

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reflective behaviour intended to produce written material for publication in the wider academic community.

When this scholarly paradigm is transposed to the undergraduate student cohort (some of whom are expected to progress to the role of academic scholar) this very particular notion of 'learning' views the student undertaking similarly individualistic, quiet study intended to result in (largely) written material (for assessment). The university campus has been consciously shaped as a physical setting to enable this personal and often passive form of learning.

Traditionally, the principal place for conducting this kind of scholarly practice within the campus has been the university library. The physical form of the library, the intellectual practices which it has generated, and the institutional culture which has grown around it are the direct result of the traditional view of scholarship and what it means to learn in the serious, academic setting that is the campus. The function and ambience of the library has accommodated and reinforced this perspective with spaces typically oriented towards silent, private study in proximity to spaces housing books and other resources. Learning in the library designed in this way was seen as a deeply intellectual process. As a result, the university library was perceived largely as a space where scholars engaged with their academic community of disciplinary peers, both contemporaneous and those who had preceded them historically. This was achieved by them accessing books and other materials, and by contributing themselves to that body of knowledge.

This has meant that the Library traditionally has not been regarded as a place where scholars can or should interact with their immediate colleagues in the shared construction of knowledge. Hinkson reminds us that collegiality, the illusive substance which is said to uniquely bind academics in a scholarly community, is not based on direct personal interaction and 'only occasionally takes the form of immediate association' (2002: 259). Instead, the conversation amongst academics has been largely mediated via various forms of technology (e.g. manuscripts, books, journals, research reports, audio-visual material).

THE SHIFT TO STUDENT-CENTRED LEARNING

A paradigmatic shift in thinking about learning in higher education has taken place over the past few decades through the evolution of what has been termed the 'student learning' research. A vast array of studies have been conducted across various national and cultural contexts and diverse tertiary systems, and have

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addressed a range of disciplinary fields. In Barr and Tagg's (1995) view, the increased emphasis on the student in higher education is the outcome of the transition from an 'instruction paradigm' to a 'learning paradigm'.

The foundational 'student learning' literature addressed 'formal', curriculum based teaching and learning processes conducted (mostly) in typical classroom settings. This discourse is responsible for establishing core concepts such as 'deep and surface learning', 'approaches to learning', and the 'experience of learning' (Biggs 1991; Bowden 1986; Entwistle and Hounsell 1975; Marton and Saljo 1976; Ramsden 1988, 1992). It was argued that students needed a more sophisticated understanding of learning to develop higher-order thinking and a 'deeper' (as opposed to a relatively simple 'surface') understanding of the material to be learned.

One of the strongest contentions to emerge from the 'student learning' research is that learning is best understood from the learner's perspective and that it is the individual student who learns (Ramsden 1992). Critically, however, in undergraduate programmes it is the teacher's teaching which drives the student's learning, where teaching is understood to comprise the objectives and content of the curriculum, the teacher's teaching methods, the modes of teacher–student interaction, and the forms of assessment (Ramsden 1992: 87). In contrast, a concern with student learning, according to Tinto, requires us

to consider how the educational environments or conditions we construct engage students in ways which bring to the fore their understanding, and actively engage them in a communal discourse.
(2003: 29)

Despite the emphasis it places on the importance of what the student 'does' to learn (Biggs and Tang 2007) and the notion of the 'learning environment' and other contextual factors (Entwistle 2009), the 'student learning' discourse does not directly address the role of the physical setting in the teaching and learning process. It does not consider, for instance, what has been described as '[t]he critical connection between physical spaces and active learning' (Skill and Young 2002: 27).

Although the physical composition of the University campus has been noticeably transformed over the past decade (Neary et al. 2010), the 'student learning' literature has had no fundamental impact on the creation of improved classroom and other learning spaces, including the development of the library as a space for student-centred learning. It is a discourse overwhelmingly concerned with learning (and teaching) conducted (but not seen to be situated) in the formal classroom setting.

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A related body of literature also exists, with theoretical links to the 'student learning' discourse, which has a more direct influence on thinking about the nature of the 'activity' undertaken by the student or the teacher and, therefore, has implications for the spatial dimension of the pedagogical process. This literature has been concerned to improve practice in very specific areas of teaching and learning. For instance, there are texts addressing ways to improve such practices as 'problem-based learning'; 'teaching with technologies'; 'group-learning'; 'assessment'; and 'lecturing' (Boud and Feletti 1991, Garrison and Anderson 2003, Gibbs and Jenkins 1992, Jaques 1991, Knapper 1980, Habeshaw et al. 1988).

Within the literature on the pedagogy of higher education, there has also been a growing recognition of the variation in student learning styles and the impact of individual preferences for learning in specific ways (Schmeck 1983). A study undertaken by the Scottish Funding Council identified three 'key learning styles' which it believes should be used to conceptualize new learning spaces. They are: 'learning by reflection', 'learning by doing', and 'learning through conversation' (AMA and haa design 2006: 1). The study identified seven types of 'new environments for learning': group teaching/learning, simulated environments, immersive environments, peer-to-peer and social learning, clusters, individual learning, and external spaces (2006: 1).

Possibly the most significant development in the pedagogical scholarship has been the increasing influence of the 'social constructivist' view of learning which sees knowledge as being constructed in a social context. From this perspective, learning therefore involves a variety of active, problem-solving experiences that engage the learner in the 'social', rather than the 'individual', development of knowledge. Key concepts within this literature are 'situated learning' and 'communities of practice' (Lave and Wenger 1990, Wenger 1999), which point to the idea that the process of teaching and learning has a spatial dimension. According to Chism, the 'constructivist' view of learning

implies the need for small-group meeting spaces, project spaces, spaces for whole-class dialogue where the students as well as the teacher can be seen and heard, spaces where technology can be accessed easily, spaces for display of ideas and working documents, and spaces that can accommodate movement and noise. What's more, the spaces are likely not all to be in traditional academic classrooms. Spillover spaces in wide corridors or lobbies outside classrooms, outdoor spaces, and spaces that include possibilities for food and Internet access are all needed. (Van Note Chism 2002: 10)

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The most overt connection between space and pedagogy is proposed by Scott-Webber, who explores the implications of the environmental behaviour research for the design of learning spaces. She offers a suite of generic spatial types to enable five distinct behavioural outcomes for learners. Whilst one of the types is intended for 'formal' instructional purposes, the remaining four types can guide our thinking on the design of the campus library to support student centred learning. She contends that the university needs 'environments for applying knowledge', 'environments for creating knowledge', 'environments for communicating knowledge', and 'environments where knowledge is used for decision-making' (2004: 42).

THE SERIOUS BUSINESS OF 'INFORMAL' LEARNING

As universities cautiously rethink the physical form and purpose of the campus setting, and the type and quantity of learning spaces required, the predominance of 'formal' learning has been balanced by a growing recognition of the serious matter of 'informal learning' (Jamieson 2009). It is this more comprehensive, physically situated notion of learning, and how it takes place on campus, which is a major influence on the current reconceptualization of the university library as a space for student-centred learning.

'Formal' learning can be defined as scheduled teacher-led classes undertaken in classroom settings of various forms. 'Informal' learning, on the other hand, can be viewed as a student-driven course or programme-based study which occurs outside the classroom (or in classrooms in out-of-class hours) with no direct teacher involvement. This mode of learning is distinct from other social interaction amongst students, or the pursuit of private study interests, which often takes place in the same settings as programme-related 'informal' learning.

It is vital to understand that 'informal' learning of this kind has increased due to the developing expectations that teachers have of how students are meant to learn. Another shaping factor is the learning tasks they construct for students, and the assessment requirements they create – all of which originate in the 'formal' learning context. 'Informal' learning therefore involves much more than meeting the student's need for attractive, comfortable facilities. 'Formal' and 'informal' learning must be seen as a continuum of 'learning', rather than as contrasting modes. Reporting on this development, Bennett says

A long-gathering understanding of students' most effective learning behaviors was making itself felt in the adoption of active learning

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practices. Students everywhere were increasingly working in collaborative study groups of their own making, to engage more strongly and often more adventurously with their coursework. Recognizing the power of this mode of learning, many faculty members built experiential and problem solving materials into their courses and shaped assignments around the expectation of collaborative study. (2003: 3)

From this perspective, 'learning' on campus needs to be understood as a complex web of experiences and interactions undertaken over a wide range of physical environments, from internal to external spaces, including classrooms, cafes, plazas, and the library. In reality, most higher education institutions have struggled to provide the range and quality of 'informal' spaces required to meet the needs of students engaged in a more student-centred learning process. Generally, universities have little or no unallocated internal space to turn over to students for study purposes. In many cases, the greatest under-utilized space is the external campus environment, but most universities have been poor at creating suitable external settings to support 'informal' learning. Consequently, the library has become (once again) a critical source of space for student learning.

As we seek to redefine the function of the library and to create appropriate physical spaces within it, Scott-Webber says the challenge for institutions, educators, and designers is to 'know for which intended behavior we are designing' (2004: 65). Rather than merely viewing this challenge in basic functional terms, some authors have interpreted it holistically, stressing the complexity of the human-environment relationship. Addressing the need to create 'responsive learning environments', Aravot says for learning to occur, 'a plethora of human capacities must be harnessed'. This is said to include all of the senses, reason, emotion, imagination, intuition, motivation, memory, creativity, and communication (2009: 46).

REIMAGINING THE LIBRARY FOR STUDENT-CENTRED LEARNING

If the library is to provide the necessary spatial types to accommodate the shift to a learning process that is firmly focused on the student, it begs the crucial question: what does student-centred learning look like? What learning behaviours does it require of students charged with taking greater responsibility for the development of their own learning?

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In broad terms, the most decisive view of learning to emerge from the scholarship on the pedagogy of higher education is that it is a social, as opposed to an individual, process involving students directly in the shared construction of knowledge. The consequences for the behaviour of students in the library seems abundantly clear and in sharp contrast to the basically individual, private study mode prevailing in most traditional libraries. But it is too simplistic to see the primary spatial response within the library as a wholesale shift to more lively café-style settings – the so-called ‘third places’ for essential social interaction, described by Oldenburg (1999) – where students can relax, chat, listen to an iPod or consume food and drink.

The literature on student-centred learning confirms that students approach their learning in very different ways and have a range of learning preferences, which indicates the need for a variety of spatial settings. Large numbers of students, and possibly all students, will still require space designed for private, individual study at some time during a course, a semester, or on a single day. There is also a clear need for spaces where students can physically move, apply skills, test assumptions, and interact collaboratively, which may result in noise and possible distraction for other learners.

Critically, the need for a greater diversity of learning spaces can be met with a campus-wide strategy. Most institutions contain more than a single library, and the spread of spatial types may be distributed variously according to local needs and circumstances. Thus, one library may be dedicated to more scholarly, research intensive study whilst another may be a more active, noisy student-learning centre. Furthermore, many of the more socially oriented spaces, for instance, may be located elsewhere on the campus outside of the libraries.

Direct efforts to reimagine and redesign the library to reflect the emerging pedagogy within higher education has resulted in two distinct facility/spatial types appearing on the university campus – the ‘information commons’ and the ‘learning commons’. Both types of facilities have typically been formed through the redevelopment of existing campus libraries, or are separate entities generally linked operationally with, and located in close proximity to, the library. In terms of the spatial design and the functional emphasis, each type of facility represents a very particular conception of student learning and fundamental student behaviour. The advent of the ‘information commons’ is a necessary response to the need to provide greater IT access for students. It is an acknowledgement by universities of the need to provide students with greater access to information technology for research, communication, and learning-related purposes, in a context where vital learning and research data is seen to be in digital form (Jamieson 2009). Technology-rich spaces of this kind which

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concentrate computers, scanners, printers, display screens, and other related devices generally stand in stark contrast to other areas within the library proper. When it has been incorporated directly into the existing library facility, Lippincott says

the information commons occupies one floor of a library facility, generally a main service floor, which often includes or replaces the library's reference area. Most information commons are currently in library spaces that have been renovated; a minority are in totally new buildings. (2006: 71)

In juxtaposition with the often rigid spatial design and seemingly singular purpose of the 'information commons', the 'learning commons' represents a very different response to student learning needs. The 'learning commons' addresses the perception that learning is a socially constructed experience immersing the individual in a community of learners. The 'learning commons' generally seeks to provide a wide range of 'learning-focused' services including learning skill units, multi-media development centers, and student IT support (Jamieson 2009: 21). Within the 'learning commons' there is generally a focus on providing a wide mix of spatial settings which offer diverse furniture types and arrangements to enable group-based and collaborative learning, and promote a greater sense of user ownership and control of the space. Less concerned with the provision of university-owned IT and AV devices for student use, the 'learning commons' has also prospered by the growing accommodation of mobile, student-owned IT devices which free students from the constraint of being situated in predetermined locations when using educational technology.

INTEGRATING A LIBRARY WITHIN A LEARNING PRECINCT

The University of Melbourne has adopted a precinct-based approach to the redevelopment of its library network as it addresses the challenges of providing for increasing student-centred and 'informal' learning. Each of the institution's key libraries is being developed to provide distinctive learning environments in order to create a spectrum of library spatial types and services across the campus. In turn, the precincts formed around the libraries are themselves integrated into a wider campus strategy for supporting student learning. The recently completed Eastern Precinct project – project budget approximately \$13 million (AUD) – is the university's prototype facility.

The entire precinct, including the library, was explicitly viewed as a space to support the range of student activity associated with a 'social constructivist' view of learning. The

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project was founded on two complementary ideas. First, that the boundaries (physical, operational) between spaces (formal/informal, internal/ external, constructed/natural) should be dissolved wherever possible. Secondly, the physical settings (individually and collectively) should enrich the learning experience (understood to be more than curriculum-related learning), inspire students, and provide sensory stimulation through the impact of their design, materiality, and ambience.

A number of complementary research traditions have addressed the person– space nexus in psychological and physical terms (Graetz and Goliber 2002, Yudell 1977). Through their physical form, the use of colour and materials, and the level and quality of light, constructed spaces stimulate the ‘senses and the mind’ (Exner and Pressel 2009). Such environmental elements of a setting can have a direct impact on the motivation and cognitive performance of individuals, either positively or negatively (Ardener 2006; Graetz and Goliber 2002). Graetz observes that there can be an emotional impact on the learner from the physical characteristics of learning environments which can have ‘important cognitive and behavioural consequences’ (2006: 1).

The Eastern Precinct project explicitly sought to attract and retain students and staff on campus in order that a viable learning community might be created. The combined amenity and range of learning environments forming the precinct has transformed a relatively neglected area of the campus into an attractive destination for learning, social activity, and chance encounters to spark the conversations essential in ‘communities of practice’ (Kenney et al. 2005: 39).

The project comprises, in broad functional terms, a major redevelopment of the University’s second largest library, which it integrated into a distinct geographical precinct formed from adjacent buildings and garden settings. Major changes to the library include the creation of a new entrance linked to the newly created public atrium, an extended-hours study zone able to be isolated from the library, an E-learning classroom, and a rich mix of individual and group-based learning zones.

The repurposed library itself has been immersed into a series of new facilities created at the perimeter of the library’s entrance or located in an adjacent art deco building. (In combination, these two buildings provide the internal spaces making up the project.) Another entrance was created on ground level at the rear of the library to provide a direct link into an extant garden, and providing separate access to an extended-hours learning facility upon closure of the library. In functional terms, the related facilities located outside the library’s boundary are:

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- a Student Service Centre for science students providing enrolment and learning support services
- a glass-roofed public atrium (enclosing the Student Service Centre) which provides social and informal learning space, as well as a zone for public events and presentations
- a suite of 'informal' learning lounges and IT zones located in a refurbished art deco building directly opposite the library and linked physically via an extant subterranean passage
- a sheltered 'verandah' for social and learning activity, created from reclaimed internal library space, which can operate as a closed room or open space according to climate and the preference of users
- a café with dual operating capacity providing service to an internal zone and an external patio
- a large external pavilion providing a mixed social and learning environment for individual or group activity; the pavilion also serves as a hub for events
- an experimental Learning Environments Spatial Lab which provides a dedicated space (which is itself a unique design) for the development of new spatial types and new teaching practices
- two large, formal lecture theatres which firmly link classroom-based learning with the 'informal' learning activity which fills the precinct.

Research shows that the design of a physical setting can influence the occupant's perception of what it means to function within that environment as the space is 'read' in terms of the cues it provides regarding its intended function and the behaviour required of those within it (Monahan 2000). McWilliam says individuals entering a learning space 'receive strong messages about what their experience of learning is likely to be' (2010: v). The deliberate message located within the spaces of the Eastern Precinct was an invitation to students to take possession of a facility created explicitly for their needs and comfort.

The person-space nexus has been described as architectural or environmental 'probabilism' by Strange and Banning, who claim that physical features can place broad parameters on what may occur in a setting which results in some behaviours being more or less likely to occur than others (2001: 20). Other researchers apply the notion of a learning space as a 'behavior setting' (Lawson 2001, Lippman 2010) to address the relationship between the occupant and the physical environment in which they are located. For Lippman,

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[b]ehavior settings must be understood as transactional (or mutually influential), because it is the relationships between the human and nonhuman elements that influence the learner and provide the opportunities for learning. A transactional worldview recognizes that learners influence their social and physical learning environments, which in turn influence the behavior of the learners. (2010: 19)

The essence of the Eastern Precinct and the individual spaces within it, including the library, cannot be conveyed in an itemized list of its functional components as it is much more than a functional facility for student-centred learning. A number of subtle, yet essential, elements, individually and in combination, shape how the precinct and its spaces are experienced. The project was predicated on the belief that the expectations students bring to a space, and the behaviour they enact within it – a critical issue in a project with minimal staff presence – could be strongly influenced through discrete design gestures.

A simple example demonstrates this approach. A series of impressively large, wooden tables (akin to those found in traditional reading rooms) have been placed throughout the project in primary locations where multiple student activity is likely to occur. They are intended for use as quiet reading and personal study areas, but with the aim of locating students in clusters rather than isolating them in more remote, silent-working areas as typically occurs in libraries. A combination of design techniques was employed to denote the tables as areas of silent, individual study as opposed to a wider mix of possibly group-based, noisy activity. The first technique involved the placement of large lamps suspended low over the tables to create a sense of place and separation from the wider area, and to dampen the levels of working noise. As well, a decision was made to set the width of the tables at 1.5 metres in order to provide sufficient separation between students who would be seated opposite each other (based on the view that student noisy interaction and collaboration increases with the reduction in distance between individuals). Finally, seating numbers around the tables were set at relatively generous levels to provide separation between students, and no seats were placed at the ends of the tables to avoid the invitation for small groups to form.

The most controversial design gesture regarding the private-study tables was the decision not to provide students with access to power for the use of personal IT devices. Thus, it was intended that specific spaces would not invite or readily accommodate the use of these kinds of technology, although students may choose to

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use their battery when operating mobile devices at the tables. This decision contradicts the common view that 'informal' learning spaces should maximize student access to electrical power to support IT use and promote freedom of use over the space. In this instance, it is a matter of prioritizing some forms of learning over others and ensuring that not every space within the library is overwhelmed by the distinct ambience that results from heavy IT use. Observations of student use confirm the intended reduction in the use of laptop computers and other personal IT devices at these tables compared to other spaces in the library.

A fundamental aspect of the design which distinguishes the Eastern Precinct from similar projects is its rejection of the widely popular concept of 'flexibility' and the diversity of use it is said to enable within spaces. Glasgow Caledonian University's Saltire Centre is a recent and much celebrated example of the alleged benefit of 'flexibility' (AMA and haa design, 2006). However, its vast entry level foyer which can accommodate multiple use can also be viewed as having many of the impersonal qualities found in the large public concourses at railway stations, airports, and shopping centres. 'Flexibility' often results in spaces that seem inconsequential and permanently on the brink of being transformed into something else. Instead, in the Eastern Precinct the aim was to create a series of integrated, complementary spaces in order to ensure that each setting had an integral function and character.

Primary functions were accorded to distinct spaces within the precinct and the design aimed to optimize the identified use and, more importantly, the quality of the experience of the occupants of each space. In practical terms, 'flexibility' was rejected through the inclusion of physically substantial furniture pieces, including a series of fixed, enclosed booths as well as large, heavy bespoke study tables which cannot be moved by users. In turn, these tables were introduced in various spaces to provide a recurring gesture which would unify the experience of students in a complex project which extends over two very different buildings.

A critical feature of the project is its dependency on bespoke furniture and fittings. This gives the entire precinct a distinct identity and ensures that it does not readily replicate similar facilities elsewhere within the campus or outside the university. This approach is exemplified by the decision to create an interior version (not an exact replica) of the major external pavilion which sits in the precinct's plaza. With this playful gesture, a space intended for informal study became an exceptional environment providing a series of pathways, levels, and seating options for students – and a strong link was made between the internal and external spaces in the precinct.

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A key element of the project is the idea of transparency, and how it has been incorporated throughout the precinct. It was intended that occupants should be able to see readily into a space from outside, see across the space in which they are situated, see from one space to another, and be able to look outside when inside a space. This was done to link what may otherwise seem like a disjointed labyrinth of spaces, build connections between students, incite interest in activity taking place in another setting, and to heighten the sense of personal security. Within the library itself, this approach is expressed in numerous ways. For instance, caféstyle booths provide enclosure for small groups and shield them from immediate view without restricting occupants' views across the library.

In creating distinct settings with unique characteristics, it was intended to provide a suite of spatial types which would appeal to students on a number of levels. For instance, in a major informal learning zone students are able to open a large number of windows to introduce fresh air. This is a completely different experience to the bulk of the campus buildings, which are air-conditioned and have sealed windows. This degree of user control has proved extremely popular with students.

A key aspect of a library designed to support student-centred learning is its relationship with the wider campus environment. To be most effective, the library needs to be integrated seamlessly into the wider spatial palette created across the campus for 'informal' learning. Historically, according to Edwards, the Library is the 'most important building on the campus' (2000: 78). He says

The library is the signifier of learning ... Libraries are study centres, buildings where student-centred learning takes priority ... (irrespective of changes in media) the library retains its central position in the environment of learning. [78]

In our effort to develop the university library, and the wider campus environment, for student-centred learning, we need to look beyond contemporary learning theory, regardless of the insight it has provided into the complex process of learning. Spaces designed to enable the preferred 'active', 'collaborative', and 'problem-based' modes of learning can very easily result in a narrowly functional

response to what is a much more complex set of human needs and instincts. We need to acknowledge, and design for, the experiential aspects of space if we are to provide the richest possible learning experience for our students.

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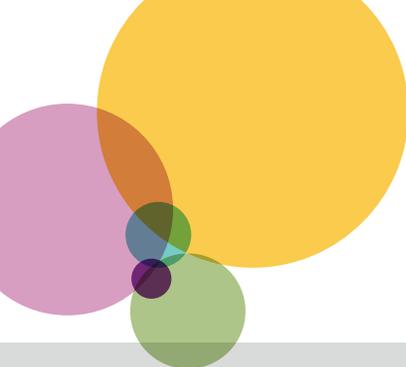
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CHAPTER

5

CONTENT AND SERVICES ISSUES FOR DIGITAL LIBRARIES



Digital Libraries
Policy, Planning and Practice

Edited by
Judith Andrews and Derek Law

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CONTENT AND SERVICES ISSUES FOR DIGITAL LIBRARIES

By Derek Law

Excerpted from *Digital Libraries: Policy, Planning and Practice*

INTRODUCTION

Most of the attention regarding digital libraries has gone on the technical developments that do, and will make them feasible, whether permanent locators, version control, metadata or cross-platform searching. Thus far, much less attention has been given to the areas of e-collection building and online services. What little thinking has gone on is limited in vision, can be partial and even part of a lopsided political agenda (Sun, 2003). A recent review of the history of 'Informatization' over the last 40 years gives collections barely a mention (Duff, 2003). But the sheer volume of electronic materials is growing rapidly (OCLC, 2003) and requires thought to be given to policy on collection building as well as the technology and practices which will allow it to happen. Present academic research builds on the collections of the past: it therefore behoves us to build collections for the future. It has been claimed in the context of Open Archives that 'the biggest challenge is getting content' (Pinfield, 2003). In the context of e-collection building, the challenge is perhaps that of building collections of coherent content.

BUILDING RESEARCH COLLECTIONS FOR THE FUTURE

In the past, building collections was relatively straightforward. The papers of distinguished academics were collected from their studies after death; manuscripts and books were purchased from rare book and manuscript dealers; contacts were cultivated in the hope of donations. The very stability of the paper record allowed patience and often multiple opportunities to determine where papers gravitated to. Nor were the collections only paper, but sometimes also physical objects. The University of Hull famously added Philip Larkin's lawnmower to its library collections (The Guardian, 2002).

The issues are much more daunting when it comes to electronic materials and largely revolve around media formats and preservation, as described in Chapter 7, by Lazinger. However, we do precious little in terms of what would have constituted collections in the past. E-drafts of documents and paper, e-correspondence between researchers, personal files on a PC rather than in a filing cabinet, and the electronic equivalent of lab books, are all falling through the net. While we feed off the collections of the past we generally fail to reflect on how the so-called 'born digital' collections of the future will look. Nor do we consider how the material will be held. The absence of agreed repository standards must be a major cause of concern. Ironically, as in so many things, one can see a potential solution in looking back to

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the experience of the past to develop thinking on the future. The Maori tradition is an oral one and they have developed a quite specific set of criteria to guide the selection of the keepers of that oral tradition (Winiata, 2002):

1. Receive the information with utmost accuracy.
2. Store the information with integrity beyond doubt.
3. Retrieve the information without amendment.
4. Apply appropriate judgement in the use of the information.
5. Pass the information on appropriately.

These points seem a perfect guide to the preservation requirements of tomorrow's e-collections.

A TYPOLOGY OF COLLECTIONS

Thinking on collections has most fruitfully taken place within the context of the Digital Library Federation (www.diglib.org/dlfhomepage.htm) and has produced interesting work, for example on strategies for developing sustainable and scalable digital library collections. Greenstein (2000) proposes four types of collection:

- local digitization projects that produce surrogates for analogue information objects;
- data creation projects that produce information resources that have no analogue equivalent and are in this respect 'born digital';
- the selection of existing third-party data resources for inclusion in a collection either through their outright acquisition or by acquiring access under some licensing arrangement; and
- the development of internet gateways comprising locally maintained pages or databases of web-links to third-party networked information.

This typology allows an exploration of the nature and extent of what is, should be, and could be made available.

DIGITIZED SURROGATE RESOURCES

It is a commonplace that not all existing collections will be digitized. Scale, copyright and value are argued to make such conversion implausible. It is certainly the case that, at present, we tend to see projects delivering selected subsets of collections

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rather than the whole. Digitized resources can be further sub-categorized beyond Greenstein's single overarching category, because the motives for digitization are very varied. Improved access, preservation, aggregation of scattered material, and more are all reasons for creating digital collections, as the following examples of the sub-categories show.

SURROGATES OF RARE ITEMS: THE BRITISH LIBRARY

An excellent example of this is the British Library's Treasures collection (www.bl.uk/collections/treasures.html), where rare treasures are made more accessible to the public (and indeed to scholars). This collection contains such heterogeneous material as the Magna Carta, the Lindisfarne Gospels, the Gutenberg Bible and the notebooks of Leonardo Da Vinci. What these great documents have in common is their rarity and their public prominence. The e-collection acts as a surrogate to allow these great iconic treasures to be open to all.

SURROGATES FOR WHOLE OR PART COLLECTIONS: THE SPRINGBURN VIRTUAL LIBRARY

During the summer of 2000 it became apparent that the Springburn Community Museum faced closure for financial reasons. Although the collections were to be transferred to the Mitchell Library in Glasgow, this much loved and popular local resource would be separated from its community. A project was put in place to ensure that the museum's rich collection of local photographs would still be accessible to the local public over the internet. Funding was secured to digitize a representative selection of materials from the collections and to lay the foundations for the Springburn Virtual Museum. Images were chosen to convey the social and economic history of Springburn, notably community and tenement life and the important local railway industry; see <http://gdl.cdli.strath.ac.uk/springburn>. As a result, a community threatened with the loss of a resource has had at least a subset of it made more accessible to all.

DIGITIZED SURROGATE COLLECTIONS ASSEMBLED FROM MULTIPLE REPOSITORIES: THE VALLEY OF THE SHADOW

The much admired Valley of the Shadow Project focuses in great detail on the experience of two communities, one Northern and one Southern, through the American Civil War, as an exemplar to give an understanding of the experience of the nation as a whole. It consists of a hypermedia archive of sources for Augusta County, Virginia, and

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Franklin County, Pennsylvania. A rich variety of materials has been assembled – newspapers, letters, diaries, photographs, maps, church records, population census, agricultural census, and military records. It encourages users to interact with materials rather than simply access them; see www.iath.virginia.edu/vshadow2

A collection with a quite different focus and ambition is the Great Britain Historical GIS Project (www.gbhgis.org), which aims to have systematic information on the history of every locality in Britain, using everything from Ordnance Survey maps to Victorian gazetteers and Defoe's *A Journey through the Whole Island of Britain*. It can be searched using postcodes and aims to allow everyone to access information relevant to their own area.

COLLECTIONS ASSEMBLED SPECIFICALLY TO BE DIGITIZED

The Aspect project (<http://gdl.cdlr.strath.ac.uk/aspect>) was set up to create a digital archive of the ephemera – leaflets, flyers, postcards, newsletters – produced by candidates and political parties for the first Scottish parliamentary election in May 1999. The archive is based on the collection of election ephemera held by the Andersonian Library at the University of Strathclyde, which is acknowledged to be an important and unique record of a key event in Scottish history. The creation of a digital archive will significantly improve the accessibility and usability of the information contained within the collection whilst conserving the original materials, which may be subject to deterioration through loss and damage. Thus, a collection being built for use by future researchers is being made immediately available, using digitization as a deliberate strategy in acquisition.

BORN DIGITAL RESOURCES

The number and scale of these is growing from scholarly journals to new fiction, from datasets and satellite images to digital video and computer-generated graphics. Many are being preserved. But examples of born digital collections are rare. It is arguable that these remain individual items rather than forming a coherently built collection. Perhaps the nearest to this is the various collections of learning objects being assembled in many universities. For example, Boezeroy (2003) gives a comprehensive overview of the Australian experience which demonstrates that these exist but are not always created with library advice or assistance or indeed even with long term preservation in mind.

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THIRD PARTY DATA SOURCES

In the UK, JISC began its work of building the Distributed National Electronic Resource in 1990 (Law, 1994) and now has a hugely rich collection of resources licensed to the community (JISC, 2003). That consortial licensing model has been widely followed. The International Coalition of Library Consortia (ICOLC) first met in 1997 and has grown to be a self-help group of some 150 consortia from all over the world. It considers issues of common concern, principally in the context of higher education and research. Without necessarily supporting it however, ICOLC (www.library.yale.edu/consortia) in effect works within the present pattern of scholarly communication to make material as available as possible.

The electronic environment offers up new and as yet unexplored models of data acquisition, whether for a single institution or in consortia. The intention expressed by Singapore in its seminal planning for the Intelligent Island (Chun Wei Choo, 1997) is to create an information entrepôt and hub for the region. It is easy to build on this concept to develop the concept of information arbitrage (Law, 2001), the notion of buying and selling information around the world, taking advantage of the time shift to buy data cheaply at off-peak times when they are little used in a country. Similar thinking has informed the development of 7x24 reference services, as described later in this chapter.

Quite novel models have also been proposed to allow freer access to the scholarly research literature. Most of the debate has centred on the ailing STM model more fully explored by Harnad in Chapter 6. The model he has advocated for many years has moved from the fringe of debate to the mainstream. Most recently, the so-called Budapest Declaration, under the aegis of the Soros Foundation declared that:

We invite governments, universities, libraries, journal editors, publishers, foundations, learned societies, professional associations, and individual scholars who share our vision to join us in the task of removing the barriers to open access and building a future in which research and education in every part of the world are that much more free to flourish. (www.soros.org/openaccess/read.shtml)

Most of the debate has focused on the perceived failure of the STM (Scientific, Technical and Medical) model of scholarly communication where the highest priced journals exist. Many other initiatives, such as Biomed Central (www.biomedcentral.com) and SPARC (www.arl.org/sparc) have demonstrated the concern felt in the wider scholarly

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community at the present state of scholarly communication and the need to change that. We appear to have developed a monster that has steadily lost sight of the fact that publishing exists to support research and not the opposite. In this debate, however, little thought has been given to the Humanities and Social Sciences, where huge numbers of journals and researchers exist and where journals are often effectively produced as a labour of love from within university departments. Here, some steps are being taken actively to persuade and assist small scholarly publishers to shift their content to electronic formats. The role then is to mediate the transfer to an e-environment and not simply to acquire content. Such an initiative is the SAPIENS project (Scottish Academic Periodicals: Implementing an Effective Networked Service) involving six Scottish universities and the National Library of Scotland (<http://sapiens.cdli.strath.ac.uk>). It aims to:

- examine the case for a centralized Scottish electronic journal service that might enable and encourage smaller publishers to make existing and new journals available in electronic form;
- design and build a demonstrator service, which will deliver current journals from a representative selection of publishers via a common gateway; and
- develop and launch an operational service, together with a marketing strategy to ensure that it is self-sustaining within a year of the end of the project.

Librarians here, as elsewhere, have developed a catalytic role in helping to make available the content required by library users.

MIRRORING AND CACHING

This is a somewhat neglected subset of third-party licensing. A mirror site, in essence, contains a locally held copy of data from another site or sites and is a mechanism for reducing costly internet traffic. An excellent early example of this is the Visible Human dataset. This was originally constructed in the United States with the support of the National Library of Medicine (NLM). It contains images of a 39-year old convicted murderer who, prior to his execution, donated his corpse to medical science. The dataset was subsequently expanded with the addition of the images of a female at greater resolution than used for the male. The bodies have been 'sliced' to create the images. NLM did not want to see copies of the dataset mounted outside the USA, quite properly fearing that issues such as version control and quality assurance were not sufficiently settled in the mid-1990s to give comfort of proper data management. For the UK, this proved a problem since this wonderful resource was heavily used in

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medical teaching and consumed great quantities of bandwidth as images were slowly downloaded. Mirroring was the obvious solution. Discussions began with NLM and, after protracted discussions, the final sticking point (according to folklore!) was the need for guarantees on what would happen to the data if the host institution disappeared. At that point, in 1997, JISC accepted an offer from the University of Glasgow to act as the host (<http://vhp.gla.ac.uk>), not least on the grounds that it had already existed for half a century before Columbus sailed the ocean blue. Whether or not the tale is true, it does demonstrate that mirroring can be just as complicated an exercise as licensing commercial data. Certainly in the UK, as network charging begins to influence decisions, it seems reasonable to expect a greater interest in mirroring as a method of reducing traffic as much as improving accessibility.

The same is true of caching data. This is one of the black arts of computing but does have a significant impact on costs, traffic and availability. This stems from the well-known library principle that the books most likely to be used are those that have been used already. Thus, a URL used once in an organization is much more likely to be sought again than one never used. So the cache (local, regional or even national) stores recently retrieved URLs for a specified period of time, in case they are searched for again. The speed of retrieval is thus much enhanced. The UK National Cache has been studied in depth (Sparks et al., 1999) in terms of performance and value for money and this is very informative in indicating the impact that an institutional caching strategy might have.

INTERNET GATEWAYS

Such gateways have now existed for several years, whether as generalist services such as BUBL 'Free User-Friendly Access to Selected Internet Resources Covering all Subject Areas, with a Special Focus on Library and Information Science' (<http://bubl.ac.uk>) or subject specific services such as EEVL for the engineering community (www.eevl.ac.uk). Typically, these are university based 'free' services, funded by third parties, often government agencies. These are based on the notion that no single institution can manage with discrimination all the information on the internet and that the labour can sensibly be divided. The UK experience began with several projects under the access to networked resources strand of the Follett Report (Law and Dempsey, 2000). These were intended to cover a range of subject areas: OMNI (medical and bioscience), ADAM (art and design), EEVL (engineering) and RUDI (urban design), all began the task of building databases of internet resources in their respective subject areas from scratch, while SOSIG extended a pre-existing project. Funding was

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also provided to support the gateways by funding ROADS, which aimed to develop software that could be used by the gateways to create the resource databases and serve them to users via the web. The success of these initial projects led the JISC to develop the Resource Discovery Network (RDN), which uses this approach to cover all subject disciplines [Dempsey, 2000]. The usage of the RDN gateways has been disappointingly low and this national approach may have to be reappraised.

One major issue appears not to have been addressed so far. There is a bland assumption that there is an almost infinite supply of bandwidth and that issues of access and slow-to-load pages will disappear: that view is not necessarily shared by all. At the same time there is an equally unthinking assumption that resources are either good or bad. However, there is a more sophisticated but so far neglected approach which asks whether the Pareto Principle might also apply to online resources. This well-known principle, sometimes known as the 80/20 rule, is used in many contexts. In the information field it suggests that 80 per cent of the usage comes from 20 per cent of the documents or collections.

It is typically assumed that access should be given to the best or most complete or most authoritative material, but these terms are never explored or defined. Networked environments add the complication of accessibility in a quite novel way. For example, in many parts of Europe, the quality of connectivity to the United States drops dramatically after the golden hours of the European morning, once American users wake up and begin to log on. So is a similar or smaller resource (but just as accurate) available 24 hours a day to be preferred to a larger resource effectively available for, say, only two-thirds of the day? We need to consider whether juggling the variables of time, comprehensiveness and accessibility can produce more effective and efficient services. As always, the key to making the Pareto Principle both workable and acceptable is choosing the right 20 per cent! There is a need for a much more sophisticated appraisal of all the factors surrounding internet gateway access than has perhaps been the case thus far.

SHARED SERVICES

Internet gateways are perhaps closer to services than collections, although they will undoubtedly help to define the perception of the library in the future. If libraries can provide online services, which are seen as independent, authoritative and right, they seem certain to see off competition from those less skilled. In an inversion of Gresham's Law, Law's First Law 1 states that 'Good Information Systems will drive out

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bad'. The development of electronic services in libraries dates back to the creation of the first automated systems in the 1960s and the area of e-services is well understood and much discussed, for example by Pantry and Griffiths (2002). Thinking is only just beginning on how using the network to share services can be exploited – although interlending and document supply is a long-standing triumph of professional cooperation much enhanced by new technologies, as is shared cataloguing.

The development of shared programmes for information skills training is perhaps an old-fashioned but important starting point for sharing. A growing number of locally prepared but networked based products is available.

Much interest has been shown in shared reference services where a timeshift allows 7X24 coverage for those staff and students who prefer anti-social habits to the normal working day. For example, the University of Technology in Sydney and the University of Strathclyde in Glasgow are piloting such a shared service where each answers reference enquiries from the other's users during the questioner's night – daytime in the other country.

CONCLUSIONS

To some extent the issue of e-collections will define the future of libraries. At one extreme there is Brewster Kahle who has adopted the universal library philosophy of the great nineteenth century libraries, considering the internet to be the library, and has a very unsentimental view of past glories such as the Alexandrine Library: 'Great library – too bad it was burnt' (Kaushik, 2003). Less comprehensive virtual libraries will require the application of the traditional skills of selection of content as well as its preservation, if not physical space; while the argument for the library as a physical place even in a digital future has been strongly argued by the UK's Library and Information Commission (Library and Information Commission, 1999). Whatever the future holds for libraries in terms of physical location, e-collections will need to be built. It is then our existing professional skills in selection, acquisition and cataloguing that place librarians as the best qualified group to organize content – provided the challenge is recognized and accepted.

NOTE

1. The creation of Law's First Law is as much an attempt to seek attention as succinctness. There is also Law's Second Law, which emphasizes the importance of offering information skills training through the library. It states that 'User friendly systems aren't'.

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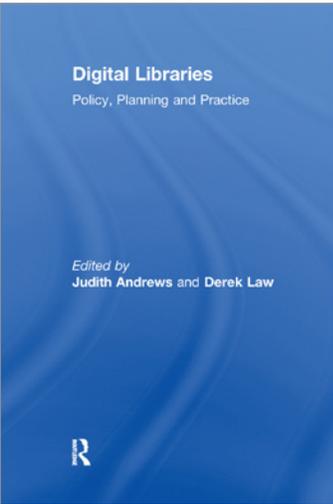


CHAPTER

6

AFTER THE DIGITAL LIBRARY DECADE

WHERE ARE THE NEXT
FRONTIERS FOR LIBRARY
INNOVATION?



Digital Libraries
Policy, Planning and Practice

Edited by
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AFTER THE DIGITAL LIBRARY DECADE

WHERE ARE THE NEXT FRONTIERS FOR LIBRARY INNOVATION?

By Mel Collier

Excerpted from *Digital Libraries: Policy, Planning and Practice*

INTRODUCTION

In the late 1980s and early 1990s the new library at Tilburg University was planned and built. Perhaps more than any library building in Europe, it became a model and a 'must see' for those planning libraries in preparation for the digital age. It is difficult to find a library or learning centre in Europe and beyond which was built in the last ten years, where the librarians and architects did not visit Tilburg. For their vision and strategy, we pay tribute to the then librarian, Hans Geleijnse, his predecessor Leo Wieërs, Solke Veling and the University Computer Centre, the board of Tilburg University and the architect Martien Janssen and all the others whom is it not possible to mention here (Geleijnse and Grootaers, 1994).

THE DECADE OF THE DIGITAL LIBRARY

The design of the new Tilburg University library was based on the vision that the digital library would soon arrive. As part of that design it was decided to provide a large number of computer workplaces for students, each with integrated desktop software. To create a library in the early 1990s with over 400 computer study places was an important innovation, preceding similar developments elsewhere by a few years. The vision of the Tilburg planners turned out to be well founded. Indeed, within a few years the digital library moved from concept to reality and many other universities rushed to emulate the Tilburg example.

The first ten years of the new Tilburg library have actually coincided with the first decade of the so-called 'digital library'. As far as the library world is concerned, the last decade has been the digital library decade. This is not to say that the digital library has only been a product or achievement of librarians. Far from it, because many other groups have been involved: computer scientists, publishers, educationalists, to name but a few. During this decade, the digital library, which had been foreseen for quite some time, suddenly became practicable. On the other hand, those of us who were active in the field in the late 1980s and early 1990s can well remember how the notion of the digital library was regarded by many at that time with a great deal of scepticism. A momentous change has taken place in the library world. As with many other major innovations, the sudden practicality of the digital library was more to do with the felicitous convergence of several factors than with one brilliant discovery. The following critical success factors for the emergence of the digital library can be identified.

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- The World Wide Web (in itself, of course, a brilliant development).
- The (relatively) quick development of electronic publishing (particularly scholarly journals).
- The availability of affordable technology (communications, storage, processing).

Tilburg University Library played a leading role in the realization of the digital library, not only by creating a landmark building as an exemplar, but also through active participation in projects, including:

- The integrated desktop.
- The first licence agreement for presentation of electronic journals (with Elsevier).
- The Elise project: early work on digital images (as part of a European Third Framework project led by De Montfort University).
- The Decomate project: a European project led by Tilburg and precursor of the now ubiquitous portal concept and foundation of the I:port product, marketed by OCLC Pica.

One can say then, that the Tilburg University Library decade has, in fact, also been the digital library decade.

THE DIGITAL LIBRARY: REVOLUTION OR EVOLUTION?

In assessing innovations there is often a debate about whether they should be seen as the product of many years of arduous preparatory build-up or whether they are a defining occurrence. The authors of the book *Delivering Digitally* (Inglis et al., 1999) are first inclined to think of the appearance of the web as a revolutionary event, but then seem to have second thoughts, wondering if it should not more correctly be seen as the culmination of many years of earlier ICT developments. Their first thought was the right one. To deny it would be like asserting that the French Revolution was not a revolution because the conditions that caused it had been building up for years. The realization of the digital library is indeed a revolution for culture and scholarship, to be compared with the invention of printing. There is now, to all intents and purposes, no limit to the storage capacity and speed of the digital library. With a few exceptions (to which we return below) libraries as storehouses and preservers of new scientific knowledge are obsolete. There are, of course, a number of underlying professional principles that endure, as pointed out by Brophy in his excellent book on the library in the 21st century (Brophy, 2001), but the library has

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changed for ever. A revolution did indeed take place in the last decade. A frontier has been crossed. Now, we have to ask, where is the next frontier for library innovation?

PREVIOUS LANDMARKS

The library world has witnessed many landmark developments over the last 30 or 40 years. From the early computerization projects, such as automated indexing and abstracting in the 1960s, development moved to the first online library management systems in the 1970s, the first microcomputer based library systems in the 1980s, and also the first local area networks and microcomputer networks applied to libraries. Within the field of library innovation these were all new frontiers: they changed the way we operated libraries. However, they did not change the nature of the library itself, which was, of course, still built around the printed word.

VISIONS AND TRANSITIONS

With the early digital library projects, the people involved had a vision. Via those projects we started heading towards the last frontier within the library domain, the frontier which, when crossed, meant that – theoretically at least – the digital library made the traditional library obsolescent.

At this point, however, it is appropriate to say a word about the transitional phases. Those writing about the management of change always emphasize that the important factors are to do with people, not technology, or that the underlying principles of the profession, or user needs, or service quality are what really matter. Others may observe that despite the introduction of new technology, not much has changed. All these things may be true. To take an example, it became fashionable towards the end of the e-Lib programme in Britain, to talk of 'hybrid libraries'. This terminology reflects the fact that, in most cases, the digital and the analogue will coexist for the foreseeable future. The author's criticism of this is that it is only a statement of the obvious (Collier, 1997), and that if one is trying to develop a theory or philosophy of the digital library, it does not help very much. This may be very much a minority opinion (Oppenheim and Smithson, 1999), but it can be observed, in agreement with Chowdhury and Chowdhury (2003), that now, six years on, there is still no generally accepted theory of the digital library. The point is that there is no problem with the formulation of strategies for the transitional phases, but not if it provides a comfort zone for inaction or hinders the recognition that a fundamental change has taken place.

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Returning to the crossing of the frontier, if we were to pinpoint a defining moment when the traditional library became obsolete, it would be when a critical mass of scientific research output became available in electronic form, around the period 2000–2002. This is a generalization, of course. The defining moment will differ for various libraries according to their mission and goals. That does not matter: the fact that a theoretical frontier has been passed is enough. The totally digital library is now feasible. Some have already done it. Whether particular libraries do in fact go fully digital is a matter of local policy.

Now that we have crossed that frontier there is much work to do in the library world. There are almost innumerable challenges to do with content development, further development of standards and metadata, discussions about rights and access, technologies for authentication, consolidating the theory and managing the change. These, and others, are tremendously important activities. They are about clearing the land beyond the frontier, cultivating it and populating it, but they are not new frontiers.

SOME ENABLING DEVELOPMENTS

There are many activities that can enable the population of the digital library landscape. Brophy (2001) provides a useful inventory of many of these. The following may be highlighted, but there are probably others.

- Interoperability
- Middleware
- User interface
- Identifiers
- Document formats
- E-business

These are topics that are already well known in the library world. In addition, the work of IMS, the Global Learning Consortium, should also be mentioned here. This body develops open technical specifications to support distributed learning. It announced, on 13 March 2003, an alliance with the Coalition for Networked Information (CNI) to explore the development of common architectural and functional models, leading to specifications in the areas of digital libraries and learning object repositories. This is an important link between the world of scholarly communication, which tends to be research orientated, and the world of e-learning.

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KEY RESEARCH AREAS

It is likely that work in the fields just mentioned is primarily in the form of developing and implementing new tools, standards, and policies: highly important, detailed and intensive work but not ground-breaking. If we look at research areas identified by those focusing on the digital future, a few key research areas seem to be emerging. Deegan and Tanner (2002), in their excellent book, single out digital preservation as one of the most important issues facing librarians and information in the digital world. The problem is already immense, growing exponentially, with no certainty of being solved in the near future, either in terms of method, or of scale. The main responsibility for solving this must lie with national libraries. Uncoordinated efforts will almost certainly be less productive. Brophy, on the one hand, and Garrison and Anderson (2003) on the other identify the distribution of digital objects as a major development. Depending on one's perspective, these can be called information objects, or educational objects or learning objects. Garrison and Anderson, in their framework for research and practice in e-learning, expect a fifth generation in which more intelligence is added to the web to promote much more fruitful searching, navigation and exploitation of web resources – the so called 'semantic web'. Tim Berners-Lee and his colleagues indeed believe that the semantic web is itself the new 'killer application' (Berners-Lee *et al.*, 2001). Personalization is also seen by many authors as an increasingly important trend in information services, encouraged perhaps by the general trend in the marketing of other goods to cater for individual preference. Personalization can offer user profiling for e-commerce, tools for personal workspace, alerting and push services, and portability of personal workspace.

Probably wisely, most authors avoid making predictions. Mention may be made of a new storage device, or mobile telephony or digital TV, but it is not so easy nowadays to identify a single technology that will make an important difference. The technological patchwork is so much more complicated now than it was ten years ago. As Brophy (2001) points out, the unexpected ground-breaking development is, by definition, unpredictable, but perhaps the new killer application will be found in one of these research areas.

THE NEXT FRONTIER?

We have said that, in the last decade, the library community crossed a frontier into the digital library world. It is true that for some time the stakeholding in library development, which was once primarily in the hands of librarians, has been passing

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into the hands of many others. Librarians are now just one group among many with a stake. Now that the digital library frontier has been crossed, and effort in that domain is mostly to do with populating it, a further proposition may be made, that the next frontier will not lie in the library domain at all. It will lie in other domains where the digital library can have a fundamental impact.

In the university world it is tempting to look at the activities that are closest: namely research and learning. Arguably, the new frontier will not lie in research. Already researchers for whom digital information is the staple commodity have fundamentally changed their behaviour in the direction of working at the desktop, using pre-print servers and collaborative working via conferencing and other communications. True, they still rely in the main for their research reputation on publication in established journals, which may or may not be electronic, but this is surely transitional. The world of research communication has already changed fundamentally. This has happened remarkably quickly and researchers now have a range of tools that will further consolidate this change.

In the digital library applied to learning, however, there are changes underway, which will have an effect of an altogether different dimension. We know already that ICT can support and enable learning that is collaborative, adaptive and asynchronous. The digital library has the potential to support those qualities and characteristics even further by promoting learning that is investigative, responsive to learning styles and by giving access to an unprecedented richness of learning resources.

WHY IN E-LEARNING?

Librarians have been in a prime position for some time to observe at first hand spontaneous changes taking place on the part of students. We at Tilburg University Library, having been early leaders in the provision of digital resources and facilities, can now see students working in ways for which the building was not designed. We refer particularly to a clear trend towards working in groups around a PC, to a more informal approach, to a preference even to work in a noisy and bustling environment. The learning centre developments in the UK, such as Sheffield Hallam and Hertfordshire Universities, are wonderful exemplars of response to these changes. The subject of learning centres has been admirably and recently covered by Edward Oyston of Sheffield Hallam (Oyston, 2003).

In learning however, the long heralded fundamental changes have generally been slower to arrive than predicted. There have been numerous experiments,

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developments and projects over the last decade. Much has been learned and it is clear that ICT has become thoroughly embedded into the infrastructure of universities. ICT as a tool of communication and of information management has become indispensable. It is strikingly clear that ICT as a tool in the educational process is an important quality factor, and the quality of ICT facilities and resources is a critical factor in student choice and institutional competitiveness. Latterly the role of ICT in the educational process itself has progressed from a mosaic of individual experiments and projects to something more integrated and structural through the introduction of digital learning environments. The digital library is now meeting the digital learning environment.

At Tilburg, we can see that students are choosing en masse for study that is supported by access to ICT, but we readily admit to not knowing precisely what is going on, how they are using the digital resources and the impact this is having on their learning. It is clear that e-learning can already be effective in certain markets: training, professional development and distance education. The promise is as yet unfulfilled in mainstream education. It has yet to have a significant effect on the structure of programmes.

THE BARRIERS BEFORE THE FRONTIER

Compared to the introduction of the digital library itself, and to its application to research, the integration of the digital library into the learning process is a far greater challenge. Learning itself is a highly complex human process and we are, moreover, at the early stages of understanding how it will adapt to e-learning. The structures and procedures surrounding education, particularly in universities can be very conservative. This is often for good reason because change brings risks and risks can threaten quality. The two most important things in university business are quality of research and quality of learning and therefore universities and academics are naturally cautious. This is, perhaps, paradoxical given that universities are essentially about independence and creativity of thought. It is also possible to avoid innovation by hiding behind protestations of quality.

A barrier of an entirely different kind is the high cost of, and protectiveness accorded to, learning content. It is notoriously difficult to persuade academics to use learning content in their programmes that has been developed elsewhere. This is another paradox, as they generally have no resistance to using textbooks written by others. The digital revolution now offers the potential of content development in a different

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paradigm from the book: smaller chunks of learning content that can be individually packaged and identified with metadata through the facilitation of the semantic web and standards such as those promoted by IMS. These kinds of learning object repositories have been predicted for some time but have not yet taken hold. There is an embryonic market in these products but it is not yet clear when market conditions will be right both from the supply and the consumer side.

OVER THE FRONTIER

In the past, one could see the frontiers looming within the library domain, which offered enticing opportunities for research, development and structural change. Now that we have crossed the digital library frontier, the next frontier is not to be seen within the library domain at all, but beyond in the learning domain where the digital library should combine with e-learning activities to effect structural change and quality improvement. Over that frontier would lie learning, which has the characteristics of being interactive, collaborative, independent and investigative. These characteristics are not necessarily to do with distance learning, although they could be. They are not an alternative to good quality interaction with tutors, but an enrichment of it. At Tilburg University we are committed to a learning approach that is based on face to face interaction with tutors, taking place in an excellent campus-based environment. The approach in the land over the frontier would be a balance of e-learning and the interpersonal. The digital library's role over that frontier will be to populate a new landscape with content that can be shared between tutors, supported by a thriving industry in learning objects and enabled by infrastructures such as the semantic Web and open standards.

THE TILBURG LEARNING CENTRE INITIATIVE

At Tilburg, these ideas are finding expression in our planning for a new learning centre in 2005. Based on the conversion and renovation of an existing high-quality building, the facility will provide an excellent physical environment for learning supported by e-learning and group work. The digital library facilities will naturally be a fundamental asset in the centre, although we have yet to discuss seriously how the digital library will need to be configured to integrate with, and support, an e-learning environment. Most importantly, the development will be grounded in the Tilburg approach to learning and on an agreed vision for elearning. We are busy with defining those two key elements at this time. As there is still so much that is unknown about

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how learning can, and should be, supported by ICT, it will provide us with a testbed for research and continuous improvement. As an e-learning centre it will complement the library, which will continue as an integrated learning environment. Together, these two facilities will provide our students with a huge range of choice of learning environment to suit their preference of study style.

THE LIBRARY OF THE FUTURE

The motto of the new Tilburg Library in 1992 was 'the library of the future today'. It was a memorable and effective motto that captured the imagination of library planners for a decade. However, visitors to the Tilburg library today will see that there is new work in progress. Although the library is only ten years old, we are in the later stages of some major changes. We have moved 7000 linear metres of journals into a store to provide more and improved space for our growing numbers of students. We are increasing the number of individual computer work places and have converted a third of the entrance level into an e-learning facility. The e-learning facility is giving us valuable experience and ideas for the design of our new learning centre in 2005. The library of the future, good though the motto was, is by definition something that is never attained, but the spirit of it, the commitment to innovation, lives on in Tilburg University Library.

NOTE

1. This is a revised version of a paper presented at 'Ten years of the library of the future', a symposium at Tilburg University on 21 March 2003, to mark the tenth anniversary of the opening of the Tilburg University Library building.

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