Editors' Introduction

Penny Dale, Jill Beard and Matt Holland

When we commissioned the authors to write for our book we anticipated that these practitioners, operating at the forefront of their respective fields, would stimulate and provoke debate about academic libraries now and in the future. When we read the chapters as they were delivered we were not disappointed. We hope the reader will be struck by two seemingly disparate aspects of their content. On the one hand each chapter is highly individual, not only in style and content, but also in approach and reflection. On the other hand common themes emerge: notably the opportunity afforded by technology (especially mobile technology), the importance of training and development for library staff, and evaluation, as well as the interdependence of teaching and research and the role technology plays in bringing these even closer together. To focus these synergies and differences we decided to use word clouds to introduce each chapter. As we ran each chapter through **Wordle[1]** we saw themes and patterns emerging; we hope that readers of the book will find this a useful and stimulating contribution to each chapter and the book as a whole. A word cloud for the entire book has been created for the cover, demonstrating in a very graphic way the breadth and depth of the content.

This opening chapter by **Sue McKnight** describes the significant role that academic libraries have in creating, supporting and participating in digital learning environments, today and into the future. Throughout the book the contributing authors reflect from a wide range of viewpoints both where academic library services are today, and how they will deal with the challenges ahead to ensure that academic libraries remain a reality in the world of digital learning environments.

Sue highlights one of the central themes to emerge from this book, that of the pivotal role of staff working in our academic libraries. She identifies that the greatest challenge will be changing the mindsets of those staff and capitalising on the fact that academic librarians are blended professionals, with multi-faceted skills and responsibilities that transcend the physical and virtual library. As more and more learning becomes supported by blended and online modes of delivery, librarians have to move out of their traditional roles and engage not only in the virtual learning environment (VLE) and the post-VLE environment, but also the physical and virtual library. These skilled staff will develop new ways of working and new partnerships. The future will not recognise the silo of the academic library, or an academic library and information technology converged service. The library's services, its staff and the resources that it manages and delivers will engage across the campus and be embedded into the curriculum and the administration of our universities.

Other contributors return to the theme of staff development throughout the book, notably Sheila Corrall in Chapters 4 and 15, and we have been heartened by the breadth and depth of the recognition of this important topic.

Peter Godwin gives his chapter a provocative title to focus on the phenomenon known as Web 2.0, now often referred to as social media. Peter gives a fascinating insight into

the opportunities, and possible pitfalls, of Web 2.0 and leaves the reader to ponder what will happen when social media merge with mobile technology. The release of the Apple iPad in spring 2010, just as this book was being completed, is perhaps just a foretaste of what is to come with one device for accessing, communicating and creating content. As Peter points out, the increasing move to electronic publications has caused various voices to raise doubts over the need for physical library buildings in the future. Yet despite the move to e-resources the higher education sector has continued to invest in its library buildings, understanding the continuing relevance of the physical library in the 21st century. The impact of mobile technologies as we move beyond the VLE and the effects of economic down- turns will undoubtedly cause further re-evaluation and debate. Liz Waller expands on this theme in Chapter 5.

Jacqui Weetman DaCosta provides both a comprehensive overview of information literacy in digital learning environments, and an exploration of the role of information literacy within digital environments. Some common definitions of 'digital literacy' are offered, along with a comparison to 'information literacy' and she discusses the digital library and its relationship to information literacy. The chapter reviews opportunities for information literacy development in academic libraries and the different ways in which these are practised in digital learning environments. Jacqui also considers staff development to enhance staff skills in information literacy and teaching. The chapter concludes with a review of recent digital initiatives and reports and the role that information literacy has (or has not) played in them.

In Chapter 4 **Sheila Corrall** discusses professional education, and the skills and knowledge needed to deliver successful library services in an increasingly digital world. She points out that professional education for library and information work is affected by numerous influences in the general global environment in addition to developments within our own education sector and in professional practice. She considers key drivers and themes including internationalisation, interdisciplinarity, technology and the economy. This chapter also describes contemporary trends in library education both in the UK and in the US.

To inform the discussion on physical space, **Liz Waller's** review uses four case studies at the Universities of Warwick, Edinburgh, Leicester and Nottingham Trent that in many ways summarise building and design trends in the United Kingdom during the first decade of the 21st Century. Liz observes that what has become evident through these developments is a strategic response to specific institutional contexts. Institutions are not generic clones of each other; each institution learns from earlier examples and following customer consultation develops a space response to fit their own needs.

Liz concludes that evaluation of our learning spaces will be essential in ensuring that the spaces delivered within our libraries are contributing to the institutional mission, improving learning and research. In this area the JISC funded Study of Effective Evaluation Models and Practices for Technology Supported Physical Learning Spaces project (JELS) sought to identify and review the tools, methods and frameworks used to evaluate technology supported or enhanced physical learning spaces. Liz makes the point that evaluation is an area in which the library sector will need to develop further in the immediate future; there is further detailed discussion of evaluation in Chapter 13 by

Angela Conyers and Philip Payne.

Rachel Geeson's chapter blends the physical and virtual environments and looks at service delivery. Specifically she considers the issues involved with implementing and running a chat enquiry service, from choosing an appropriate product to staff training and publicity. The experiences of a number of UK Higher Education Institutions currently offering chat enquiry services are discussed at various stages. Aspects of more advanced use, such as web 'co-browsing' and virtual advice by appointment are also included. The chapter closes by considering what the future holds for virtual advice services and the potential impact of the growth in mobile technologies. The outcome of the proliferation of mobile technologies will surely be a step change in how we communicate with all our library users in the future.

The continuing role of the academic library supporting learning, teaching and research is by no means a foregone conclusion. This chapter by **Penny Dale** and **Jill Beard** looks at some examples from library history of services that have vanished because they have failed to respond to changes in user demands and expectations. It considers what the term 'reading for a degree' means in digital learning environments and looks at the partnerships needed to support students.

Reading lists have long been synonymous with printed books and journals. The authors take the experience at BU, where changes to the Copyright Licensing Agency rules have enabled book chapters and journal articles to be scanned and made available at unit level. This has enabled other enhancements to the blended learning environment to happen, for example the short loan collection to be replaced by more study spaces, and academic staff have been more involved with the possibilities of the digital library.

The next three chapters focus on research, and begin with a contribution by **Alma Swan** on institutional repositories (IRs). Alma points out that IRs are becoming essential tools for universities, to enhance the visibility and impact of their research on a national and international stage.

Alma identifies advantages for institutions in implementing IRs. If the whole research output is collected in the repository, then it becomes part of the university's management information system. Managers can see what is being produced, by whom, when, and where outputs are being formally published. Such analysis informs future planning activities and budget allocation decisions of research managers. In countries such as the UK, where there are national research assessment processes, repositories will provide a base layer of data to underpin research assessments.

There is a broader vision to explore as well. Repositories will form the data layer of the future – the layer where research articles, datasets and other digital items that support research will be located. This system will support the e-research (or e-science) agenda, facilitating the sharing of research data and their curation and preservation. New services will work on this data layer, aggregating, analysing and disseminating content, and providing researchers with the means to organise and display their own content in new ways.

Alma reflects on progress so far in technical, cultural and policy areas, discussing the

barriers that have already been surmounted and those that threaten future progress.

Matt Holland and **Tim Denning** continue the research theme and consider the importance of IRs in support of research, focussing on three areas; how the IR fits with the university organisation; how to promote the use of the IR to end users and contributors; and how to secure long term benefits for the broadest range of stakeholders. They incorporate two short case studies into the discussion, and include a description of the implementation of Bournemouth University Research Online (BURO).

Virtual research environments (VREs) are the subject of the next chapter by **Melissa Terras, Claire Ross** and **Claire Warwick**. Recent developments in online resources have led to the establishment of VREs: suites of applications, services, and resources which aim to enhance the research process by aiding scholars to carry out a range of complex research activities. The definition and concept of what constitutes a VRE continues to evolve, as developers attempt to create flexible and adaptable frameworks of resources to support both large and small scale research across a variety of disciplines. VREs are often integrated with digital library and virtual learning environments (VLEs), to allow users to analyse and manipulate existing digital research data.

To ensure the success of VREs, it is essential that developers liaise closely with the user community they are providing services for. This chapter discusses the potentials inherent in VRE technology, whilst addressing the relationship that such environments have to their users. A case study involving the JISC funded Virtual Research Environment for Archaeology (VERA) project is presented to demonstrate that close integration with the relevant community is crucial if a VRE is to provide computational tools that reflect research practice. This chapter also stresses the necessity to include users into a systems design process, and highlights the opportunities that exist for librarians to become more involved in the creation, management, and curation of VREs and their related research data.

Moving from the space, students and research agenda in HE to supporting degree level students in Further Education (FE), **Jane Russ** reminds us that the concept of studying a Higher Education programme at a Further Education Institution (FEI) in the UK is not new. In partnership with Higher Education Institutions (HEIs), FEIs have been delivering Foundation Degrees, the most recent manifestation of HE in FE, for nearly ten years. Many colleges are now delivering top-up programmes for their Foundation Degrees with considerable success. At Kingston Maurward College, for example, it is now possible in some disciplines for students to start College on a day release or a diploma programme at 14 and continue to study at the College until they graduate with a BSc Honours Degree. Many of these Foundation Degree and Honours graduates go on to find highly specialised professional careers or move on elsewhere to undertake postgraduate studies.

In the early days of Foundation Degrees, there was much discussion about the practicalities of delivery, such as ensuring access to resources, and the more esoteric aspects of delivery, such as the student perception of identity with the partner HEI. Libraries and Learning Resources Centres have always played a key role in these

discussions.

This chapter reviews briefly how many of the initial concerns relating to delivering resources in the HE and FE environment have been tackled and, for the most part, overcome. It goes on to explore the opportunities and challenges faced by the emerging use of virtual learning environments.

International students are increasingly important to HE, and **Frank Trew** looks at the support offered to international students by library services at UK academic institutions, with some mention of services at US and Australian universities as points of comparison. He describes a range of projects and support services, and asks "What are we doing for international students?" During the course of the research for this chapter Frank found himself confronted by the question "Why are we doing it?" and writes about this experience, and his changing thoughts on an answer to that question.

The book returns to one of the themes identified in the opening chapter and referred to by several other contributors, that of evaluation and performance measurement. **Angela Conyers** and **Philip Payne** agree that libraries and their services to support learning and teaching are being transformed as dependence increases on electronic resources. They observe that previous perspectives on library quality are being challenged in the search for new measures of use and performance. The rapid transition for libraries in the digital world calls for a stronger evidence base to inform change management.

As we invest increasing sums in e-services and digital infrastructure, we need to know that this represents value for money. This chapter considers such questions as: How can we show that our services are cost-effective? What e-measures exist and how can we use them to evaluate the library's performance? How do e-measures differ from traditional input and output measures for libraries? The student experience, and the student perspective, are increasingly important to our institutions. In a student-centred environment, it is not just about finding out whether students are happy with our services (although this is important). It is increasingly a matter of how we can involve students and staff in the design and development of services and gather their perspectives on what we are doing.

Measurement of cost-effectiveness and satisfaction are valuable to us in managing our libraries. However, there is an increasing pressure for libraries to demonstrate their impact. Angela and Philip ask what approaches and methods can be adopted to help us show that our performance in the digital age makes a direct contribution to learning and teaching.

The possibilities of the digital future require new models for procurement, innovation and exploitation. **Emma Crowley** and **Chris Spencer** describe the skills staff need to deliver resources in hybrid and digital environments. The chapter demonstrates the innovative ways that librarians use to procure and exploit the wealth of resources available in a digital world. They also describe the technological developments that can be adopted to improve workflow processes and they highlight the challenges faced on this fascinating journey.

We end with two chapters that look to the future. Staff development has been a recurrent

theme of this book and in her second chapter **Sheila Corrall** discusses continuing professional development (CPD) and workplace learning in electronic environments. She points out that CPD has become even more important than before in the changing digital environment as shown by the introduction by professional bodies of formal schemes for recording progress. Information schools are offering both open programmes and bespoke courses to meet needs for updating and training in new specialties, and employers and practitioners are using a variety of methods to meet their ongoing educational and development needs. Work-based learning, leadership development programmes and on-the-job learning in the workplace are now recognised as convenient, cost-effective and flexible methods that can be offered to staff at all levels.

Mentoring schemes, reflective writing and portfolio building have also become more common as their value has been demonstrated through formal incorporation into professional qualifications and active promotion through supporting workshops. Several of our contributors have identified the vital role that staff training and development has in the digital future, and this chapter shows the reader some excellent examples of what is being done, giving some pointers for provision needs in the near future.

Finally **David Ball** quotes from Karl Marx to challenge views about the third ICT revolution. He signposts that we are on the threshold of the third, electronic ICT revolution and that its effects will be as fundamental as those of the previous revolution – the invention of printing.

The links in the information value chain are discussed – creation, publication, aggregation, access and use – with a particular focus on the differences between print and electronic formats for scholarly communication. There follows an analysis of the costs of scholarly communication through journals and monographs, and of the trends in pricing and negotiation, particularly the effect of the big deal. It is noted that the largest cost is in the time of users of information, not in subscriptions: savings here could far outweigh any potential savings through big deals.

 David points out that the electronic age has the potential to turn academic library practice on its head: a library will collect all the research outputs of its own scholars, and make them available to the wider academic community, instead of collecting, storing and disseminating the research outputs of other universities. He highlights a number of measures to facilitate change, particularly in terms of repositories and open access journals.

In our opening remarks we anticipated that the practitioners we had asked to contribute to our book would stimulate and provoke debate about academic libraries now and in the future. We hope the result presents the reader with an exciting journey through the development of the digital learning environments in academic libraries, and a clearer vision of the immediate future. Along this journey we hope readers will find many points of reflection and debate to inform their practice now and into the future.

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[1] http://www.wordle.net/