# Higher Education Library Technology

# The new role of the library in teaching and learning outcomes

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## *Briefing paper*

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*This is the third Higher Education Library Technology briefing paper. HELibTech [1] is a free and open community resource which aims to provide a starting point for anyone interested in library technology in Higher Education. This paper was supported by sponsorship from SirsiDynix.[2] The authors retained full editorial control over the content of this paper and maintained an independent and impartial view of the issues.*

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[1] http://helibtech.com/

[2] http://www.sirsidynix.com/

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## THE CHALLENGE

Students around the world are concerned that the growing cost of higher education (HE) is not

> "Those that offer poor value for money will have to shape up, or disappear"

delivering good value. Reviewing the situation in the US in 2014 The Economist reported that: "Transparency and technology will force many colleges to cut costs and raise quality. Online education will accelerate the trend." [1] It went on to emphasise the challenge: "Those that offer poor value for money will have to shape up, or disappear". Two years later it reported on the situation in Europe and noted that a growing number of students are opting to pay "alternative providers" for their higher education. More and more European governments are supporting this, typically private, alternative provision. In March 2017, A.C. Grayling, philosopher, author and founder of the New College of Humanities, London suggested that: "New, alternative providers are the face of change in higher education".[2] Making it easier for such providers is one of the key elements of the UK Government's Higher Education and Research Bill. [3]

## A GROWING INTERNATIONAL EMPHASIS ON TEACHING AND LEARNING OUTCOMES

In 2016 the Higher Education Academy (HEA) acknowledged that: "The importance of 'high quality teaching' in higher education (HE) is becoming increasingly emphasised both in the United Kingdom (UK) and abroad... Excellence in teaching has become entrenched in higher education policy and in the educational strategies of academic institutions, and increasingly linked to the performance and assessment of these institutions". [4]

In the same year the UK government set out a new Teaching Excellence Framework (TEF) as part of its Higher Education and Research Bill. [5] Teaching quality will be measured on metrics which are likely to change over time but which, initially at least, will be related to graduate employment, student retention, and student satisfaction. It must be acknowledged that this

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approach is controversial.  For example Sally Hunt, general secretary of the University and College Union cautioned: "Unfortunately, the metrics being used for the TEF tell us little about teaching quality and nothing about how we could improve things".[6]  Despite the controversy most UK higher education institutions, including major research universities, have signed up to the TEF.

The underlying issues driving the TEF are not unique to the UK. Around the world the HE sector is very aware of the growing need to demonstrate value to students. In the US in 2016 the ACRL Research Planning and Review Committee noted:  "Student success continues to be an important focus for higher education institutions, where the trend towards performance-based funding and accreditation criteria includes an emphasis on learning outcomes, retention, and matriculation".[7] Institutional and library strategies in many countries will increasingly reflect this attention on teaching and learning outcomes.

## A NEW LIBRARY RESPONSE TO IMPROVING TEACHING AND LEARNING

The value of the library in terms of teaching and learning is not in doubt. Speaking in 2016, Liz Jolly, Chair of the Society of College, National and University Libraries (SCONUL), highlighted the value of the library with a quote from an Australian report: "Students tend to be more engaged with learning on the whole if they engage with library resources, interact with library staff, and spend time using libraries." [8] There is a growing body of international evidence that links the use of library resources with the kind of outcomes the TEF will measure. For example analysis of the data from a study at the University of Minnesota, USA found that: "First-time, first-year undergraduate students who use the library have a higher GPA [Grade Point Average] for their first semester and higher retention from fall to spring than non-library users". [9]

> "Students tend to be more engaged with learning on the whole if they engage with library resources"

The question confronting library leaders now is how they can *increase* the value of the library and more strategically articulate it in terms of the new agenda around learning outcomes. Libraries have a number of key assets that staff can galvanise to better support teaching and learning: buildings, collections, technology and data.

### Buildings: Library to learning space

New library buildings have been a notable component of what The Guardian newspaper called a "building spree as tuition fees pour in". [10] The University of Birmingham opened its £60 million new library in 2016 and in 2017 the University of Bedfordshire opened its £46 million library. Clearly if universities see a strong value proposition they can find significant resources to meet the need. Much of the focus of these new libraries is on the provision of an environment that will better support student learning. Announcing a £26million new library development, Leeds University Librarian Stella Butler stated: "The new library will provide our students with a state-of-the-art, high-quality study environment". SCONUL Director Ann Rossiter summarised it succinctly: "Pedagogy is the driver for the changes in library design". [11]

### Collections: Library resources to learning resources

Libraries struggle to provide sufficient resources to meet user demand.  In the National Student Survey (NSS) a Middlesex University student voiced a common concern: "Library resources are insufficient: It can be hard to get hold of books that appear on reading lists as there are only 1 or 2 copies". [12] Digital content could help solve the problem but this technology-based promise has not been fully realised. For example, the recent *Digital access solutions* report from Jisc, a not-for-profit provider of digital solutions for UK education and research, noted that: "Modern university libraries require remote access for large numbers of concurrent users, with fewer authentication steps and more flexible digital rights management (DRM) to satisfy student demand". They found the most frequent problem was that core reading list titles were not available to libraries as e-books. [13] The report talks of an

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underlying 'market failure' where vital learning content is not being provided in the ways that libraries demand.

## Overcoming the "textbook taboo"

UK universities typically limit library provision of textbooks and many university libraries in the USA have a policy of not providing textbooks at all. In 2016 Rick Anderson, Associate Dean for Collections and Scholarly Communication at the University of Utah, advocated that libraries need to get over what he labelled their "textbook taboo". He went on to say: "At a time when it is increasingly necessary for libraries to find new ways of being mission-critical to their sponsoring institutions, this aversion to textbook provision seems to me increasingly self-defeating". [14]

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## The challenge of licensing models for core learning resources

Textbook publishing is big business, requiring major investment. It generates significant revenues. Anderson's view is that it is going to take a big shift to overturn the current model. E-book platforms such as Kortext,[15] VitalSource[16] and start-up digital textbook provider Bibliotech [17] are eager to work with publishers to promulgate a commercial solution. No doubt they would challenge Jisc's notion of market failure. Their solution is a licensing model based on limiting use to individuals or for specific courses. This enables them to deliver digital resources that are not available via the library. A percentage of the e-book titles identified by Jisc as not available to libraries *are* available on the Kortext platform.[18] This course-specific model is not favoured by most libraries or by Jisc but has been eagerly adopted by some institutions. If libraries are to play a more inclusive role in the management and delivery of learning resources they may have to reconsider their approach to resource licensing.

## Open resources

Making textbooks and core learning resources open and freely available at a low or zero price is another approach to solving the problem. It can also help institutions support online learning, for example in the form of MOOCs (massive open online courses). Jisc is running a four year (2014-2018) project on institutional open textbook publication. It aims to better understand if the institution as e-textbook creator can: "Help students by making higher education more affordable, and promote a better, more sustainable information environment for libraries, students and faculty". [19] Lara Speicher, Publishing Manager, UCL Press noted that for Higher Education Institutions (HEIs): "The advent of the TEF provides another incentive...to raise the topic of institutionally produced textbooks higher on the agenda".[20]

> *"Educators, institutions, and even state legislators are turning their attention toward Open Educational Resources (OER)"*

In the US, academic software firm bepress notes that, in response to increased student textbook costs: "Educators, institutions, and even state legislators are turning their attention toward Open Educational Resources (OER)" in order to save students money while increasing engagement and retention. As a result bepress has developed its infrastructure to host and share OER within and across institutions.[21] The UMass Library Open Education Initiative estimates it has saved the institution

over $1.3 million since its inception in 2011.[22] Other textbook initiatives include SUNY Open Textbooks, developed by the State University of New York Libraries, which has already published 18 textbooks, and OpenStax, developed by Rice University.

However, Rick Anderson remains sceptical that these initiatives will constitute a sufficient solution in the near term: "The prospect of revolutionizing the textbook industry with OERs seems like it's going to be a long-term one...the ratio of words to action in this realm remains quite high". He sees potential for a better outcome by working with publishers: "Helping textbook publishers...is not the point. But if, in helping students, we end up helping textbook publishers as well, that might be something we regard as an acceptable by-product – especially if it attracts textbook publishers to the project as collaborators". Knowledge Unlatched [23] is an example of this kind of collaboration: "We believe that by working together libraries and publishers can create a sustainable route to Open Access for scholarly books." Groups of libraries contribute to fund publication though a crowdfunding platform. The consortium pays a fixed upfront fee for the publisher to publish the book online under a Creative Commons license.

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### Diverse and disaggregated content: taking a holistic view of learning resources

Rick Anderson's "taboo" notion might also be extended to librarians managing many other kinds of learning resources. For example, libraries typically don't manage the course learning resources in the learning management system (LMS)/virtual learning environment (VLE). This is where students find core resources such as presentations, digitised versions of key texts, lecture notes and videos. As formats such as e-pub are developed it will become easier to break up or disaggregate content such as e-books into smaller parts which will be easier to consume on mobile phones and tablets. A Jisc e-book project from 2013 noted the trend towards "increasing disaggregation of e-book content into smaller but coherent elements". [24] According to Jisc, students value 24/7 access to a variety of online content including lecture notes, want greater use of lecture capture and value a more consistent online service. [25]

This lack of coherence in terms of the holistic management of resources was noted as far back as 2001 by librarian John McColl: "There is a burgeoning area of overlap between the 'learning resources' which academics wish to install in their VLEs, and the

> *Libraries typically don't manage the course learning resources in the learning management system (LMS)/virtual learning environment (VLE)*

digitised learning resources which libraries are making available".[26] This has been one of the driving forces in the adoption of library-centric reading list software.

## Technology: from library systems to educational technology

### The rise of the library centric reading list system

The last five years have seen a big increase in the number of universities in the UK, Australia and New Zealand deploying library reading lists solutions. Over half of the libraries in UK Higher Education have installed such solutions.[27] The online reading list can be seen as a sort of course catalogue that gives the user a (sometimes week-by-week) course/module view on core resources

and provides a link to print holdings information or the electronic full text. It differs significantly from the integrated library system (ILS) 'course reserve' module, notably by providing access to materials beyond the items in the library catalogue. Titles can be characterised, for example as 'recommended' or 'essential' reading and citations annotated (e.g. 'Read chapter 4'). There is even the possibility of providing more personal touches: a University of Birmingham list notes: "Emeritus Prof. Lote taught renal physiology and pharmacology to medical students in Birmingham for about 35 years".[28]

*Reading list software brings librarians and academics together into a system where they must cooperate to be effective*

These solutions allow academics to maintain their reading lists online (with the ability to pull in new references from a variety of sources) and easily link reading lists to resources in the library catalogue/discovery system.  There is also integration with the back-end acquisition elements of the ILS to generate an alert when additional copies need to be ordered. This kind of functionality has potential benefits for publishers too. Reading list data aggregated regionally or nationally could provide them with vital information about how their content is used, by what kinds of user and for what courses.

Reading list solutions commonly integrate closely with copyright clearance workflows. This can have a significant impact, as librarians from the University of Birmingham note: "By allowing digitised copies of chapters...to be uploaded and automatically copyright-checked – academics are saved a lot of administration time and can focus their energies instead on choosing the right resources for their list. Most importantly, though, items that would have ordinarily been restricted to print-only access can be made available. For distance learners especially, this is transformational".[29]

Reading list integration with the VLE can be seen as an attempt to bind together the two worlds of library learning resources (print books, ebooks, articles) with course-specific learning resources such as lecture notes, videos or OER. Reading list software brings librarians and academics together into a system where they must cooperate to be effective. Indeed some librarians claim that the reading list system is a key library tool for transforming student learning.  By "investing our efforts into developing a genuinely effective, interactive and responsive reading list system" librarians at the University of Birmingham are aiming to "transform the teaching and learning experience for students and academics".[30]

Reading list systems have achieved a high adoption rate because they are seen as providing high value. Indeed some university libraries pay more for their reading list system than their ILS. Until recently these systems were not deployed in the US. This is partly because academics (faculty) are more likely to select a single title that most closely relates to the content of the course they are teaching. The title is then recommended to their students. Higher education institutions, particularly those in Australia, New Zealand and some other parts of Europe (including the UK) are more likely to operate a reading list model, supplying students with a (sometimes long) list of recommended titles.

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Nevertheless, reading list solutions are now getting traction in the US. SirsiDynix, a US headquartered vendor, announced 'BLUEcloud Lists' in 2016. It will manage a range of resource types: "Books, journal articles, newspaper editorials, YouTube videos and more". The initial customer, Cranfield University sees it as a key component for "postgraduate course materials and student-staff collaborations for learning and teaching".[31]

> *"My students have to deal with 17 different ebook platforms all with different interfaces and usability options. The frustration level is sky high"*

In 2015 Ex Libris partnered with predominantly non-US libraries to develop and launch its reading list module *Leganto*. The following year the company announced a version, *LegantoSM,* targeted at the specific needs of colleges and universities in North America. The solution is designed to improve student engagement and retention and to "reduce the cost of educational materials for students and schools by maximizing the use of library-subscribed resources; taking advantage of advanced pay-per-use models for academic publications; and promoting the use of open educational resources". [32]

## E-book platforms

The licensing restrictions on e-textbooks and core texts mentioned earlier mean that key learning resources may not be found in the library's ILS or discovery service. Students can be confronted by a bewildering array of options to find and obtain the resources they need. For example in a response to a survey in early 2017 a librarian remarked: "My students have to deal with 17 different ebook platforms all with different interfaces and usability options. The frustration level is sky high".[33] Consequently it is no surprise that by providing students with a more mobile-friendly, coherent approach to core resources: "Aggregators such as VitalSource and Kortext have formed strong positions". [34] In April 2017, to extend its reach, Kortext formed a partnership agreement with Dawson Books, a company that provides a library-focussed e-book platform. The press release emphasises the value of a single platform: "Students can end up with one Universal bookshelf for all of their textbook and library content where they can take notes, study and collaborate with their colleagues".[35]

In 2014 the University of East London (UEL) partnered with Kortext to provide an estimated 4,000 first-year students with a tablet device preloaded with "core e-textbooks as well as links to the university's online library resources, the virtual learning environment (VLE) and other student resources and information". This was billed as: "A major new initiative to support student learning and success". [36] In 2015 Middlesex University invested over £2 million in its programme to provide students with free core e-books. It is worth noting that the money did not come out of the library budget: "Money was allocated by the University Executive. This was new money which had not previously been allocated either to Schools or the Library".[37]

> *"Students can end up with one Universal bookshelf for all of their textbook and library content where they can take notes, study and collaborate with their colleagues"*

There is another key advantage that platforms such as Kortext and VitalSource have over conventional library e-book platforms. It is data. The data on library journal and e-book usage from services such as COUNTER [38] or the aggregated national UK service JUSP [39] do not include even

anonymised data about the *user*. The customer is the *institution*. In contrast digital e-textbook platforms enable lecturers to see "how many students on their modules have accessed their digital textbooks. They can also compare how students are using them, such as pages read and notes taken".[40] These kinds of data will also be invaluable to publishers.

## Data: library management information to learning analytics

In May 2016 the Economist announced that: "The world's most valuable resource is no longer oil, but data. Smartphones and the internet have made data abundant, ubiquitous and far more valuable".[41] The Higher Education Commission report *From Bricks to Clicks* cites learning analytics as bringing enormous potential for improving the student experience and went on to highlight the role of the library in providing key data to support analysis.[42]

> *"Every time a student interacts with their university – be that going to the library, logging into their virtual learning environment or submitting assessments online – they leave behind a digital footprint"*

### *Learning analytics*

The digital footprint left by students in their daily engagement with Higher Education leaves large amounts of data that lends itself to analysis which can be used to improve teaching and learning. A Jisc report which gathered evidence and case studies from the UK, the USA and Australia stated: "Every time a student interacts with their university – be that going to the library, logging into their virtual learning environment or submitting assessments online – they leave behind a digital footprint. Learning analytics is the process of using this data to improve learning and teaching".[43]

Learning analytics will play a key role for academics. A recent report from the Higher Education Policy Institute[44] (HEPI) emphasised that: "Learning analytics can furnish teachers with information on the quality of the educational content and activities they are providing, and on their teaching and assessment". Jisc's *effective learning analytics* R&D project is spending more than £1 million over two years to provide academics with "everything you require to track student learning activity so that you can improve retention and attainment". In summary, according to HEPI, learning analytics is one of the primary tools that universities should be considering if they are to make the most of the potential of technology to transform teaching and learning. The new General Data Protection Regulation (GDPR) makes institutions far more accountable for the protection of the data they hold and this could make them cautious about how they exploit data analytics.[45] Nevertheless the expectation is that: "The vast majority of universities will soon be using learning analytics of some sort".[46]

On their own *library* management information or analytics will not suffice. Greater integration with systems and services beyond the library will be a prerequisite to deliver actionable learning analytics. For example, Nottingham Trent University's learning analytics initiative[47] is designed to increase retention and improve attainment. Engagement scores for each student are calculated from VLE access, library usage, card swipes and assignment submissions.

> *"The vast majority of universities will soon be using learning analytics of some sort"*

## CONCLUSION

### Leadership

The Higher Education Policy Institute talks of "rebooting learning for the digital age" and places a strong emphasis on leadership: "Strong digital leadership is a key feature of effective educational organisations and its absence can be a significant barrier to progress. The digital agenda is therefore a leadership issue".[48]  It is also one where librarians have much to offer. Institutional pressures will demand that librarians are even more strategic in positioning their value propositions in the context of a wider institutional approach to teaching and learning outcomes. It is not a given that conventional *library* resource budgets will grow

> *We expect to see more libraries take a holistic view of the management discovery and delivery of learning resources*

but the recent large investments in library buildings and digital textbook platforms have demonstrated that substantial funding is available in response to good value propositions.

### A holistic view of library and learning resources

As part of strengthening their value proposition we expect to see more libraries take a holistic view of the management, discovery and delivery of a wide range of learning resources.  At the moment many valuable resources stand apart from the conventional library collection. Just as librarians have expanded their remit in terms of support for research outputs and outcomes[49] we will surely see them play a closer and more active partnership role with academics in the acquisition and curation of course-specific teaching and learning resources. For example, while the e-book initiative at Middlesex University is positioned and funded as an *institutional* project, the library is recognised as being vital to its successful management.[50]

### An increased role for data analytics

The value of data analytics will surely be a key driving force. Data from reading lists and digital textbook platforms combined with information from other institutional systems on student retention and academic performance will produce powerful insights. Such analytics will be invaluable to institutions, publishers and intermediaries as they look at new ways to deliver content.

### A merging of LibTech and EdTech

All this suggests a trend for library technology and educational technology to merge. We will certainly see reading list systems, VLEs and digital textbook platforms better integrated and perhaps even subsumed into common *learning services platforms*. This might be achieved through mergers and acquisitions or new solutions coming to market. We are beginning to see a shift away from a narrow conception of *library* systems, the *library* supply chain and *library* data. Conventional integrated library systems and even the new generation of library services platforms remain wedded to an outdated view

> *Conventional integrated library systems and even the new generation of library services platforms remain wedded to an outdated view of learning resources*

of learning resources and will have to change significantly or be integrated or subsumed into a new generation of learning services platforms.

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Ken gained his Masters degree from the Information Science Department at City University in London. He is also an alumnus of the Warwick University Business Innovation and Growth Programme. He worked as a librarian for a number of years and has over 20 years experience in the software business, working in support, project management, implementation, sales and marketing and as executive director and board member. Ken set up his consulting business in 2007 to help make libraries more effective. His consulting activities include help with strategy, innovation, improving the user experience, reviewing/auditing library IT infrastructure and systems, and the procurement of new and replacement systems. His work also encompasses e-books, resource management and discovery, open and linked data, repositories, archives and research data management. In addition he provides market intelligence and horizon scanning services for and about the information and library technology sector

Ken is a member (MCLIP) of CILIP and ALA, a committee member of the NISO Open Discovery Initiative (ODI) and an Advisory Board member for the open access journal *Studies in Arts and Humanities.* For six years to 2016 he was a main committee member of UKSG. He set up and manages a number of free, open community resources including Higher Education Library Technology (HELibTech), Local Government Library Technology (LGLibTech) and Open Specifications for Library Systems (LibTechRFP).

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Helen is a graduate of Aberystwyth University where she gained a joint honours degree in Librarianship and English Literature before spending time as a librarian. Her career spans over 25 years and includes work in publishing, library systems, data services, and library book supply. Helen has extensive experience of the changing landscape of supply across a range of products and services including print books, e-books, library management software and publisher data. She is passionate about delivering excellent customer service and has considerable experience of representing companies going through transformational change as a response to technological shifts and challenging markets.

Latterly working for Dawson Books (Connect Group), Helen is interested in how academic libraries and suppliers can contribute to the broader strategy of the university by using technology and innovation.

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