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Accommodating shifting user expectations

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Abstract

Whether they are called netgeners, born digital, digital natives, screenagers, Generation Y or Generation Z, the current and next generation of library users want everything, and they want it now. They communicate constantly, tapping and swiping I-Phones, I-Pads and androids as they broadcast their daily activities via Twitter and Facebook. They rarely sit still and do nothing and do not discriminate in using technology between their personal and professional lives – studying, working and living are all integrated in the mashed-up infosphere. They are readers, viewers, listeners, writers and speakers and use a variety of media. What use do they make of libraries? What do they want from us? How do library buildings accommodate their needs?

One emerging trend is the need for silence – the generation who communicates constantly via their fingers and thumbs and the photographic record seems to want quieter spaces in libraries. They remain voyeurs and view others at work and play – but more silently it seems, although they still want opportunities to meet with others and discuss learning and life – preferably with food and drink. They are serious about what they do and want to be treated with respect and empathy.

Digital natives want their information resources delivered seamlessly with voice and vision included, not just words on paper or on a screen. **In Google we Trust** is their mantra and if it is on the web, it must be true. Digital natives have difficulty evaluating what they find and tend to regard all information as equal in value. Their approach to scholarship and learning needs to be developed. They regard the full output of scholarly work in one continuum whether it is real or virtual.

And the library buildings for this generation? Digital natives want attractive buildings which are easy to use and provide pleasant environments and a relaxing space with plenty of technology. They want to plug in, power up and prowl the internet. They want "high tech" but they also want "high touch". They want individual personalized help wherever they

might be – and at varying times of day – my place, my space, my time – and targeted to my needs. The paper explores the needs of digital natives and some of the possible changes in library building design to accommodate the shifting sand of user needs.

The changing context

Changes in information technology have altered every facet of life and of library activities. In libraries, the real and the virtual have co-existed in varying ratios for several decades. The range of materials contained in library collections has expanded to include real and virtual resources, print, e-books and e-journals. Content initially provided locally in print, on CD-ROMs, DVDs and other storage devices is now primarily located on a "cloud", accessed remotely and is no longer king, having been replaced by "conversation" (Doctorow, 2006). Social media including Facebook and Twitter are being heavily used and visual images are stored and transmitted through FlickR, YouTube and Vimeo. Video and audio are being streamed and accessed through i-tunes and similar means.

"Readers" have become "viewers", "listeners", "writers", "creators" and "networkers". It is an Amazoogle, cloudy, mobile, visual, wireless world. Google is a dominating influence, with Google Scholar, Google Books and Google Plus. Free and commercially available answer services have developed. Wikis and blogs are dominating forces. Everyone has become an expert and can make an entry on the Wikipedia or compile a mash-up on YouTube. There are smart phones, laptops, net-books, IPads, tablets (not the ones consumed for medical purposes!), multiple e-readers, androids and apps for everything. Mass digitization of print is occurring with scanning of the entire collections of large libraries as well as one off digitization projects, DOD, Digitization on Demand. High-end printers like the espresso book machine are housed in libraries, facilitating POD (Print on Demand) services (MLibrary, 2010). Online access is increasing and changing in its nature, particularly with the use of mobile devices. Countries throughout the world are struggling with copyright, intellectual property and privacy issues. Research in all disciplines is becoming e-research and traditional disciplines are breaking down with increasing trans-disciplinary and multidisciplinary approaches.

E-mail and SMS dominate communication – people are constantly connected but not always connecting. New ways of doing business have developed for libraries who are building collections through profiles, bundling and licensing purchases and outsourcing processes as well as seeking assistance from users in expanding and enhancing access through "crowdsourcing". While early forecasts that the physical library would disappear have not come to fruition, there are significant implications for library services, collections and facilities. What is taking place in the online sphere and what is its impact on the use of physical space? What kind of planning and design will future-proof libraries?

The users: who are they? What do they want?

The term Millennial, Netgen or Digital Generation or Gen Y is often given to the group born between 1982 and 1991. Generation Z has been added and other terms used to describe younger library users are "netgeners", "screenagers", "digital natives", or the "Google" generation. *In Google we Trust.* Whatever their name, this group of users multi-tasks, constantly communicates, is globally and visually oriented and tends to have short attention spans.

According to Lippincott, this younger generation prefers (Lippincott, 2010):

- Doing academic work with or around their friends or classmates
- Making extensive use of technology and digital content
- Focusing on their academic work late at night and into early morning (could be anytime within a 24 hour period)
- Relating to one another mediated by digital technologies, social networking media
- Accessing and using information to create new knowledge and art forms
- Socialising and learning at the same time
- Blending formal and informal learning experiences

The coming generation has been described as Generation α – those born from 2010 onwards (Valentine, 2010). A video on *YouTube* describes visually what some of their needs might be (VALATV, 2010). More mature users are also heavy users of the new technology and recent research reveals that the differences between the young and the old are becoming less significant. Knowledge of the behaviour, habits and preferences of all users of library and learning spaces is essential when designing both physical and cyberspace.

Recent focus groups and interviews with faculty in relation to the Law Library at Bond University revealed some surprising views. All were using new technology constantly for personal and study use but all were printing out much of their study materials and high value was still put on the use of print. While they appreciated bright new spaces, they still expressed a preference for traditional spaces. When shown photographs of the Apple stores, they found them clinical and unappealing. They gave higher ratings to spaces with timber furniture and darker colours. Faculty do not use the physical library very much but are united in promoting the need for vital library physical spaces for students.

McGill University Library in Montreal has been undertaking the LibQual survey for some years, seeking feedback from faculty, graduate students and undergraduates. There are differences in their needs and wants as far as libraries are concerned. Faculty primarily use the library remotely but still think the physical space is important for their students. Graduate students are focusing on the books, finding resources and the space itself. Undergraduates make fewer references to books in their feedback and see study in the space and the space itself as important for their needs, as well as finding resources. A "wordle" analysis of comments reveals these differences in an interesting manner. The Libqual+ survey has revealed that students want a getaway for study and research and community space for group study and research but increasingly they also want quiet space for individual activity and a comfortable, inviting and relaxing place in which to work.

At San Jose State University, students representing a variety of groups on campus were invited to complete a learning spaces survey, which they undertook with a disposable camera to identify their favourite spaces. They then identified the least and most favourite campus places and interpreted peer responses resulting in a dialogue amongst the students and planners (Somerville & Collins, 2008). The outcome yielded the following student priorities:
- Open unconfined environment
- Comfortable, reconfigurable furniture

- Functional, inspiring space; and
- Ubiquitous mobile technology

At Özyegin University in Turkey, one of the activities to engage students was a short-film competition to celebrate the 46th Turkish Library Week. Students were invited to produce a film about the library with the theme "......in the Library". All films submitted were creative, original and approached the subject matter from very different angles. Winners were presented with prizes (including an IPad, a digital camera and a gift card from the campus bookshop) at a gala event. A "People's Choice" competition was also held on Facebook to select the film that won the highest number of "Like"s. The Facebook site received over 5000 hits in less than one week (http://www.facebook.com/#!/OzUKisaFilmYarismasi).The winner received a gift card for a handsome amount from a popular store catering for young people. The competition and the gala event were a huge success drawing attention not just from within the campus community, but nationwide and beyond. The activity generated considerable student involvement in the library and helped library staff gain insight into students' expectations and perceptions about the library. The use of social media, involvement of students in the film competition, judging jury and presenters during the gala event all contributed to the success of the event itself, and strengthened student interaction with the library.

The library's biennial "customer satisfaction" survey conducted in May 2011 measured both the importance of and satisfaction with various library services, resources and facilities using the ServQual principles (Wikipedia, 2011). The students' responses to the question about "physical conditions" of the library confirmed the inadequacy of the library space. The written comments at the end of the survey were predominantly about the library's physical conditions, noise levels in the library, lack of group study rooms, lack of quiet study spaces and lack of eating facilities as well as rules against food and drink in the library. In general, students wanted to be able to:
- talk with their friends in the library when they want to without feeling inhibited
- socialise in the library
- eat and drink when they feel like it
- work in quiet spaces when they want to and need to
- work in groups in group study rooms
- store their personal belongings
- use mobile phones any time and any place
- use the library any time, i.e. 24 hour access and even sleep there

Michael Wesch and his students at Kansas State University made a short video which outlines the behaviour of the student of today. S/he reads eight books each year, one thousand three hundred web pages, one thousand two hundred and eighty one Facebook profiles, writes forty pages for a class and five hundred pages of e-mail. S/he spends 3.5 hours each day online (and many other studies report much longer periods of time), 1.5 hours watching television, 2.5 hours listening to music, 2 hours on a mobile phone, 2 hours working, 2 hours eating, 3 hours in class, 3 hours studying and 7 hours sleeping – and yes, this generation has managed to make 24 hours stretch into 26.5 hours – and yes probably multi-tasking is occurring – eating perhaps while listening to music or watching television (Wesch 2007).

OCLC's user studies, the work of Pew Research and JISC in the United Kingdom, as well as individual studies in particular institutions, all point to emerging user needs and ways of improving library services to meet those needs. Most people prefer Google as their first point of call to search and access information. The library catalogue and website often play a minor role during the research process. Users undertake many activities in libraries using social networking media with smart hand-held devices, watching movies, listening to music or podcasts, reviewing resources available from a wide range of sites, chatting with friends, family, teaching staff, or even complete strangers using any number of media. Users collaborate on projects, research problems, upload photos, videos, multimedia, create presentations individually or with others, and use specialist software and "apps". They play games. People are conversing and exchanging information via SMS, email and social media like Facebook and Twitter as well as telephones, plugging in, powering up and prowling the internet and communicating with fingers and thumbs and photographs.

Design of library facilities must provide new approaches to servicing new needs and client behaviours. Long-term strategies are needed to cater for both the young and the old, who may be either clients or library staff. There are generation gaps and it is not uncommon to hear complaints about young people who make their presence known, e.g. too much noise, socialising and so on. Differing client demands present challenges and opportunities for librarians, architects, designers and facilities managers. There are also challenges for the maintenance of spaces and a continued match of the facilities with changing needs and use patterns. Future- proofing of libraries and other learning spaces needs is part of long-term strategic planning on an on-going basis, and not just a one-off activity.

Library design traditions

Most library buildings are built to last. Library design has involved the construction of new buildings and the refurbishment of old ones. The availability of capital funding for the construction or renovation of libraries varies tremendously across the world and over time. It has frequently been easier to obtain funds to build new libraries, grand in scale and conception, than to refurbish existing buildings. Articles identifying impressive library buildings frequently include the Bodleian, the British Library and the Library of Congress. Traditional libraries look and feel awesome, are associated with Greek and Roman architectural features, are constructed with magnificent stone facades, use polished timber, are grand and are silent.

Product and process have dominated library space design. Spaces and collections have been arranged according to library-generated rules, operational priorities and procedures. Little attention was paid to "wayfinding" habits of users. Libraries were collection-centred. Although libraries in universities and cities were located near their users, with branch libraries located adjacent to the people they were serving, users found many libraries lacking in transparency and difficult to navigate. Library staff played the role of intermediary, explaining and teaching users how to find the Library's collections and facilities. Early in history, archives, galleries, museums and libraries were frequently combined – a tradition now reappearing in some communities (GLAM).The design of many libraries has been driven by the whims, values or desires of the owner, the donor, the funding authority or the architect. Libraries which were public, private or attached to royal persons reflected the

values of the people or institutions with which they were linked. The form of some libraries followed their functions. Others suffered from the edifice complex and were designed as monuments to knowledge (or the ego of an individual). Ideas associated with literacy, scholarship and education were expressed in library design.

With the arrival of the web and digital information, libraries began to implement new approaches to use of library space. Computers and workstations were introduced in increasing numbers, together with hard-wired and wireless access by laptops and other mobile devices brought into libraries by their owners. Library design also accommodated computers for library processes such as lending. The positioning of inquiry points began to ensure that library users were able to gain help and assistance in using both the real and the virtual. Although print journals continued to be purchased alongside their electronic counterparts, the accommodation of ever-growing print collections as a primary purpose for the library building became less significant. The library user emerged as a stronger focus. The huge growth in the use of the internet, the development of social networking, an enhanced understanding of library client behaviour, the emergence of mobile technologies and many other changes in ways of working, problem solving, learning, study, and research led to new design approaches. Libraries became learning spaces.

Technological and economic changes have been accompanied by changes in the culture of teaching, learning and research. Learners learn from each other, from peer to peer. People learn collaboratively. People learn through engagement and involvement; they also learn from experts and didactic approaches are still common. Learning takes place through reflection, reading writing and giving and receiving feedback. Learners gain skills as well as knowledge. Teachers view learners variously – as willing partners in the process or as empty vessels waiting to be filled with knowledge. Ideas about lifelong learning and learning for life direct content and approaches. The significant changes in teaching and learning range from the use of competency frameworks to interactive approaches with greater use of online learning, social networking and online learning management systems.

Teachers have moved from the delivery of lectures and the transmission of information and knowledge involving a comparatively passive student body to a student-centred approach, with learners taking an active part in their own learning. While these changes have not been universal, there is worldwide an increased emphasis on case studies, problem-based and resource-based learning, project work, group work, collaboration, lifelong learning, blended and hybrid learning, distance education and the acquisition of skills as well as knowledge. This has changed fundamentally the use of teaching facilities and libraries. Group work rather than individual study has put unprecedented demands on the use of library and other learning spaces, and the use of information resources. The nature and methodology of research has also changed as well as the topics examined. Interdisciplinary, transdisciplinary and multidisciplinary approaches are now common with increased opportunities for collaborative approaches. This means that libraries devoted to specific disciplines may no longer be relevant. Many people learn remotely at a distance and link their learning to a variety of support and advisory services. All of these developments demand different approaches from information service providers with enhanced and increased access to information resources and "just-in-time" and "just-for-you" services offered by libraries to their clients. The library as a learning space must reflect the many approaches and trends in learning and teaching.

There have been many sources of inspiration for the design of libraries. Many have started with the ancient agora, combining commercial and community uses. Marketplaces and villages have provided the vision for some designers. Others look for guidance to restaurants, which provide leisurely eat-in experiences, basic café style or speedy take-away services. Shopping malls, department stores, specialist stores including music, computer, phone and video shops as well as bookshops have provided ideas and examples of layout. Airport lounges providing models of areas where people sit and wait have guided some of the design of libraries where people sit and study. Entertainment venues and parklands have inspired some. The "commons" have been drawn on and all kinds of community gathering spaces, theatres, galleries and museums have influenced library design. The recent establishment of distinctive formats for the Apple stores throughout the world have been very important in guiding new ideas within libraries. The genius bar, the high counters for display and use of computers have been imitated by many libraries.

The costs of running libraries have increased, for both salaries and the purchase of resources and budgets have not grown accordingly. The economics of managing libraries has emerged as a force affecting library design. Rationalisation of branch library provision has grown apace and in some parts of the world reduction in service points also followed with the introduction of increased self-service facilities. The user focus transformed libraries into exhibition spaces, community hubs with coffee shops, meeting places, and vibrant areas providing for individual and group learning, study and research. Libraries are becoming knowledge malls and knowledge incubators (Aion, 2009), people places, media or resource centres,, cyberspaces as well as learning spaces. Some libraries are creating spaces for joint use with other functions. These include community services, art galleries, student services, public exhibitions and IT Services. The new spaces include computer clubs, twitter spaces, games rooms, multimedia production facilities, printing outlets, bookshops, cafes, exhibition and display galleries, help desks, information bars, genius bars, I-places, I-spaces, cybertheques, research assistance, specialised data curation, writing centres, research and teaching support, learning advising, study booths and discussion pods. For example, Bond University's Balnaves Multimedia Learning Centre managed by the Library has clusters of computer games areas and a multimedia classroom to cater for the computer games and film and media studies programs. Traditional inclusions remain with individual study desks and spaces for storing and displaying print collections. However, as spaces for printed collections contract, the areas vacated can be remodelled to house additional functions.

Libraries under threat from cyberspace?

Claims that libraries will become obsolete now that all the information one needs is available on the net, free and easy to find and use, continue. '*Who needs physical libraries anymore*?' is heard, especially when times are tough and competition for funds is fierce. Throughout the world, the very existence of many libraries is under threat. The effects of the financial recession are beginning to bite and funds available for public, special, school and university libraries are shrinking. New user demands and expectations are emerging in an atmosphere of accountability. Libraries are experiencing savage cuts, some of which are lethal.

> *In New York, as in districts across the country, many school officials said they had little choice but to eliminate librarians, having already reduced administrative staff, frozen wages, shed extracurricular activities and trimmed spending on supplies. Technological advances are also changing some officials' view of librarians: as more*

classrooms are equipped with laptops, tablets or e-readers, Mr. Polakow-Suransky noted, students can often do research from their desks that previously might have required a library visit. "It's the way of the future," he said. (Santos, 2011)

Picon's statement "An illusion must be first discarded: the notion that cyberspace entails the collapse of physical space... this notion of a collapse of space caused by the development of telecommunication is one of the oldest myths of the industrial modernity" at the University and Cyberspace Conference elegantly sums up the naivety of some of the claims about the disappearance of libraries with the growth of online access to information (Picon, 2010).

Even though people spend a lot of time in cyberspace, they still keep coming back to physical libraries, using them for a wide variety of activities. Users of libraries look, read, whether it be on paper or on a screen; they listen, talk and communicate, through email, SMS, social networking sites and in person; they write, type, text; they relax, rest, learn; they feel inspired and reflect; they seek ideas and solutions; they receive training; they want a sense of community of being with others, they meet others; and they eat and drink. Statistics demonstrate a growing use of libraries whether they be public or university libraries. Those libraries that have been renovated with the needs of the users in mind, and their input and collaboration, have led to increased use e.g. the renovated branch libraries at the University of Queensland, the newly created Multi-Media Learning Centre and the Main Library at Bond University and the renovated branch libraries at McGill University. Increased usage has come from accessible resources, a variety of spaces, new equipment, flexible and innovative facilities, as well as extended hours, and often 24/7. The collaboration and consultation process in space planning and design involving not only actual but also potential users prior to the building and renovation stages has been critical for the success of new spaces.

Physical space can help make cyber life richer and more productive. Cyberspace has been added to the traditions guiding library design. Physical space can be designed as an extension of the virtual space and vice versa and allow users of libraries to make the most of each seamlessly. The Information Commons concept initially resulted in "glorified computer labs" with rows of computers and related hardware and software, unwieldy chairs, and library and/or IT staff on duty to provide some help and assistance. Such facilities were usually open for longer hours Hybrid spaces facilitating communication, silent study and interactive group and individual activity have emerged.

Variety is the spice of life and spaces provided must meet many needs - study, collaboration, innovation, interaction, discussion and networking, for individuals and groups, with or without computers and with or without coffee or food. Users want basic facilities with easy access to services and resources; they want access to the real and the virtual, with the virtual growing in importance. They want inspiration and fun, and they want pleasant and inviting surroundings and experiences in libraries. When asked, clients perceive libraries as pleasant relaxing places providing computers, spaces for contemplation and group discussion, with friendly people on hand to provide assistance in finding and using information.

Design approaches – the planning phase

The Library space planning and design process too often begins with the wrong questions i.e. the number of books, computers, staff and users to be accommodated; the type and number

of service points. It is still not uncommon to refer to some library standards (e.g. x number of square metres per student and so on), as it makes the task of calculating both the space required in terms of square metres and the cost of building it easier. Libraries designed to promote study and learning (Bennett, 2005) and today's use of information are fundamentally about people – how they learn, how they use information and how they participate in the life of a community (Demas, 2005). All stakeholders must be involved and informed throughout the renovation and building stages. The final new space must not be launched as a complete surprise to its users. The users are and will remain the ultimate owners of the library and learning spaces. It is not uncommon for both librarians and space planners to make assumptions about the needs and wants of the users. "Don't guess, just ask" should be the first planning principle of the learning and library space (both physical and cyber) design process. Focus groups and user studies must formulate questions and state problems and issues in a purposeful way. The approach needs to be carefully planned, and progress and results communicated in such a way that users feel that their involvement and consultation are taken seriously. Social networking tools can be increasingly used to engage students in space planning activities.

It is vital that all ideas from users, designers, staff and other stakeholders are brought together into a concept brief to be provided to potential architects as well as fund providers. The brief should also include considerations in relation to self-service, occupational health and safety, specialist facilities for differently-abled, sustainability, low maintenance, appropriate environmental conditions, security for both collections and users, and support of extended hours, not to mention long-term flexibility of the facilities. A global focus remains but each brief must address local needs and requirements. At the planning stage, finding the right architect is crucial. Some libraries call for expressions of interest; others hold competitions; others send out briefs to a small select group. Any selection decision must be based on an examination of existing work, experience with libraries, and an ability to work with whoever is chosen. Interior designers can be a less expensive alternative, particularly in the case of refurbishment. No planning would be complete without the appointment of an advisory group for the project.

Space layout

The Library's location and entry/exit points must be central to the paths people take on their daily treks, for example be close to transport outlets, shopping facilities, eating precincts, community gathering places, and in an educational institution, the cafeteria, dorms, bookshop, cafes, lecture theatres, academic buildings or sports complex, and be clearly visible and part of the natural traffic flow of the area. Library spaces situated away from people's daily paths may not be well used if special effort is required to get there. Linking library spaces to other spaces creates a continuum between work and play as well as opportunities for interactivity, engagement, socialisation and stimulation. Transition – on the way to or from the library –is an important consideration.

Libraries have experienced difficulty with self-service auto-loan machines and could learn from supermarkets ensuring that layout is similar – with roving personnel to assist. Special facilities for differently-abled must be factored into the layout, along with an auditorium or lecture theatre with potentially breakout groups. Open space will facilitate gathering and assembly and can be coupled with exhibition or display space. Most libraries include cafes or

restaurants but often forget the storage space required for restaurant, auditorium or display spaces.

Providing appropriate space for seating, collections and service points is vital. Care must be taken to ensure that spaces serving individual study are quiet and separated from spaces for group study. As already noted, many of today's users are embedded in their online social networks and appear to want silence around them when engaged in scholarly activities. Active spaces are also required. Some may cater for to low chatter; others for more exuberant discussions. Group study can be accommodated in separate rooms or pods, in banquettes or booths, with some kind of soundproofing. Classrooms will accommodate information skills or information literacy programmes and require fitting out with electronic support. Specialist accommodation can be provided in libraries for more privileged users like Friends' groups, graduate students or writers' centres or local history groups. These can contain lockable pedestals or sets of drawers for continued use. Group rooms should accommodate two to ten persons. Many libraries provide a mix of carrels and tables for individual study, with separation by low or high dividers, which might use transparent glass or Perspex dividers, or more opaque separation for privacy. Seating includes today a range of casual seating from bean bags to ottomans and plastic furniture which might provide "perching" space that is not intended for lengthy periods of use. Many interesting shapes define the casual seating of today. Ergonomic concerns are important for chairs. Casters allow easy movement. Some height adjustment might be possible.

Most libraries are releasing collection space for use by users but most libraries are still accommodating extensive print collections. While some are separating out low use materials into separate stores, it must be remembered that today all print is receiving lower use. This trend will continue into the future. A few libraries have introduced automated retrieval systems for such stores but these are extremely expensive. Some libraries locate their stores at some distance from users. As the size of print and "real" collections shrinks, many libraries are integrating formats and sizes of materials instead of separating them out, making them easier for users to find. Some libraries ensure "real" collections are located adjacent to those who are using them – some libraries still have material in separate "blocs" and in closed access, with only a selection of materials in open access. With lower use of printed collections and increased demand on space for users, compact shelving has been introduced by many libraries – in open access and not just in areas infrequently accessed by users. Low shelving used in public spaces permits easy lines of sight to locate various facilities.

Libraries are abandoning inquiry desks or integrating them into a single HELP inquiry point, with triage occurring and referral to others. Such a desk should be located near the entry – but not too near. Users should be able to find their way around but need to be aware of locations of service assistance. Any desk should facilitate standing up or sitting down to make an inquiry – with potential withdrawal to an office area for more detailed discussions. Service points might be adjacent to collections, computers or study areas. Many users would prefer these days to "dial up" rather than "get up". High tech high touch remains an important consideration and help from real people should be located where it is easy to find and access. Positioning telephones throughout the building can provide links to help and assistance. Many older libraries are removing the service points scattered throughout their library buildings.

Technological considerations

Libraries are still continuing to provide fixed computers in situ, although supporting the use of laptops by users who are bringing them with them, as well as lending laptops, is growing. It is still unclear how many computers should be provided – but a lot of them is the simple answer. It is the same answer for power points. There cannot be enough either for the use of people bringing laptops in for use, or simply charging them up. Power must be provided to all desks and tables, as well as pillars and placing it around the skirting boards provides a reasonable degree of flexibility. Some libraries provide standing use of some computers in specific areas to share the load. Some users like to sit up high – others down low. Libraries can lend IPads and IPods as well as laptops or netbooks. Large screens near the entry can be interactive or one way and broadcast information required, or allow interrogation. Group study rooms should be equipped with appropriate technology for use. Wireless must be everywhere. Many libraries today require high-end multimedia for use by clients in production of resources. Scanners and printers require special accommodation. Maximum use of mobile devices must be facilitated. Backend server storage may also be required, as well as specialized accommodation for digitization and scanning activities.

Ambience, signage and wayfinding

It is difficult to please everyone but all library users are seeking comfortable relaxing spaces. Quiet and relaxing places are required as well as vibrant attractive spaces. Colour is very important and the creams and greys of bygone eras have for the most part gone by. Green is considered a soothing colour and vibrant colours like orange are re-emerging. The colours are frequently themed and may match those used by parent institutions in their branding. The use of plants encourages sustainability and also appropriate client behaviour. Anti-social tendencies seem to disappear as the ambience of the library improves and is taken seriously by library staff. Colour can be used to denote specific activities throughout the building e.g. blue may be used to indicate a silent space. Colour palates should be prepared by a trained interior designer. Changing the look and feel of a "tired" building can be comparatively inexpensive with changing colours used through pain and floor coverings.

It is frequently surprising to find that existing libraries do not have satisfactory lighting levels. They can be easily measured and should match requirements for reading and studying. Lighting may be located on the shelves or on desks. Many libraries with high ceilings find appropriate lighting difficult. Up-lighting can help. Fabrics, fittings and furniture are all critical to the creation of the atmosphere and the use of an interior designer will ensure these are fit to purpose. Art works are also important in setting the scene. Some building projects stipulate a percentage to be spent on art works.

Determining whether eating or drinking is permitted may be fraught. Most libraries permit water and some have an approved cup which can be used. The materials used may be sustainable or recycled and their composition is also important in determining the look and feel of the surroundings. Flooring should be carefully chosen. Hard surfaces like ceramic tiles are long-wearing and easy to clean but extremely noisy. Carpet tiles are usually preferred to carpet – the theory is that worn patches can be easily replaced. It may be cheaper to use broadloom carpet and adjust to replacing it on a regular basis. Soundproofing and insulation are important. The "baffling" used for absorbing sound can be attractively designed as a wall feature.

A student initiated recycling program was a feature of a refurbishment approach in the foyers of a library building at McGill University. The students, in collaboration with Facilities, University Services and Library, designed the functioning of a multi-purpose recycling bin, including signage and marketing of its use with students. All garbage bins were removed – and yes the approach was mostly successful. Students did become more responsible. The WOW factor- an expression of surprise wonder and enormous please is important to achieve.

Signage is frequently used in libraries to overcome planning and design mistakes. Navigating one's way should be transparent and easy. Signs must be theme and coloured and developed across the facility. Signs which indicate direction should be differentiated from those indicating position – where on is, or what services are available at particular points in the building. Badging and branding are important considerations and signage and wording should match messages on the website. Large screens at the entry have been mentioned and may be one-way or interactive. Simple words should be used – some may involve more than one language. Colour coding and consistency must be put in places and jargon avoided at all costs. Signing should be worded as positively as possible – avoid the use of the word "no" unless it is really meant e.g. NO EXIT. There is no need for politeness where safety is involved. It is frequently easier to install signage after a building is in use to determine issues people find in wayfinding.

Some features of academic libraries in Turkey, Australia and Canada

In Turkey, libraries have been perceived and presented largely as study halls and book depots until recent times. Only a few have been paying attention to library design as part of the learning space design. Some of the academic libraries built in the last 20 years have been designed as iconic monuments to impress the community with their large atriums, huge circulation desks, multiple service points, grand entrances and impressive staircases, as showpieces. There are a few recent new university library buildings or renovations where associated areas including group study spaces, informal sitting lounges, 24/7 study areas, and coffee shops are attached to libraries and service points have been redesigned.

There is very little material published on library buildings and design in Turkey (Balanli et al, 2007). What is available focuses on standards, hygiene factors, library staff accommodation and regulations rather than on learning, interactive spaces, services and community needs. A few of the private, not-for-profit universities funded by private foundation income sources and tuition fees have in recent years begun to use customer satisfaction surveys to obtain feedback about the quality of services, resources and facilities. It is not clear whether the results of these surveys have contributed towards obtaining support for improvement of physical spaces.

Turkish universities like others elsewhere have been experiencing a great deal of change, with increased emphasis on research and internationalisation due to closer links not only through the EU, with some universities becoming part of the Bologna process and the Erasmus program, but also with the rest of the world. Increased emphasis on research and performance measures related to research and increased competition for better quality students especially in the private universities have helped some libraries to improve their resources and facilities. However, librarians often complain about the lack of consultation in

space and technology projects. Most university building projects tend to be engineering focused rather than service or user focused. The perception of the Library's role and the status of librarians no doubt contribute to this lack of consultation and involvement of librarians in the decision making process.

Özyegin University, a new private university, was established in mid 2008 with the vision of being an innovative, technologically advanced, international, entrepreneurial and accessible university. The university has been operating at its interim campus at the Uskudar district of Istanbul for the last three years, whilst planning the new campus about thirty minutes drive away. The small library space with its growing collection of largely electronic resources serving the interim campus was established as a focal point to cater for the needs of the small intake of students – 230 students in 2008, further 220 in 2009 – and academic staff in business, engineering and hotel management programs. It was originally anticipated that the new campus would be ready for the 2010 intake. Unfortunately, the campus construction was delayed due to planning permission and compliance issues. Plans were revised several times. The additional intake of 420 students in 2010 put pressure on the space available in the library and the rest of the campus. An additional study space with a 7/24 quiet study area and group study rooms as well as a large social space nearby were created to cater for the increased numbers of students.

Even though the year was challenging, it provided the opportunity to interact more closely with the student community, to guide them in a more interactive manner with their research and to encourage them to be more involved in campus wide extra-curricular activities. The library began using student assistants to work at the front desk and to assist with various other duties.

A Princeton-based international architectural firm with extensive experience in university space design was commissioned to design the new campus master plan. The planning and design process took more than 2 years and the construction of the entire campus will take several years. The first two buildings, Engineering Building which will house all other faculties, administration and classrooms for the first year and the Student Centre will be ready for occupation in August 2011. The library space was conceived as part of the student centre building, similar to a village square which will also accommodate a forum, a restaurant, several coffee shops, bookshop, other commercial outlets, performance area, exhibition space, small fitness area outside the library, student services, counselling, career planning, and meeting rooms.

The Rector (Vice-Chancellor) has been particularly interested in the design of learning spaces, including the library, to ensure students feel comfortable and at ease on campus and are able to exploit the facilities and the services available to achieve their learning goals, emerging from their university experiences as well-rounded graduates in demand. A monument like separate library building with thick walls, away from the centre of the campus was never part of the vision. The needs, expectations, behaviour and attitudes of present day students to learning, technology, space use, socialisation, communication and information were taken into account right from the beginning of the project. The building will have over four levels and a glass exterior using as much natural light as possible. The campus is designed as a green campus. An application will be made for LEED certification.

The Library Director as a member of the committee to select the architectural firm was involved in subsequent consultations to revise the plans and during the implementation of the plans.

The interim campus experience over the last three years and various student activities to get the students involved in the design of the new campus library including the short film competition mentioned above have been helpful during the planning process. The interim campus library will be transformed into the new law library as it will house the new law faculty due to its proximity to the business districts of Istanbul. The next challenge is to plan the law library to meet the requirements of the law academic staff (the law students will arrive after September 2011) which are expected to be much more traditional than the expectations and behaviour of the current student population who prefer colourful, comfortable spaces and furniture with a lot of flexibility.

Australian academic libraries have seen the construction of some new library buildings, the development of joint and individual stores for the accommodation of collections, the amalgamation of branch libraries and the refurbishment of library spaces. In general, funds have been provided from capital sources within the Federal funding regime, from local budget allocation and from funds available through donations. The University of New South Wales has seen the construction of a new Law Library. The University of Sydney has amalgamated small science libraries to provide a fresh new space, which meets the needs of cyberspace, and physical space and also has a new Law Library. It is also planning a refurbishment of its iconic building, the Fisher Library. User needs are being brought to bear in an effort to combine cyberspace and physical space. LaTrobe University has recently "re-opened" its library with a new entrance and installed a new learning space. Most Australian academic libraries have plans to refurbish spaces, or have recently done so.

The University of Queensland Library experience has been typical of many Australian libraries. The refurbishment began with a new name for the Library – the Cybrary, a linguistic device for forcing a re-think of library service provision and of library space design in the cyberspace. An excellent collaboration between the Cybrary, the Wilson firm of architects and the University's Property and Facilities Division ensured the refurbishment and construction of 13 branch libraries over a period of 10 years. New libraries were constructed at the Princess Alexandra Hospital, the Mater Hospital and Ipswich Campus Libraries. While the term cybrary has not lasted, the approach has continued with a the creation of an excellent new pharmacy library within the PACE (Pharmacy Australia Centre of Excellence). Initially, the University's Undergraduate and Central Libraries were combined to form the Social Sciences and Humanities Library. The Biological Sciences Library was extended and enhanced to provide interactive learning spaces and e-learning centres. It has since been altered to remove all library collections and now constitutes a learning space.

Planning at UQ initially focused on the need to include easy real help and assistance, self-service facilities and a search for models of design on similar services like video stores. User behaviour was tracked to ensure it was understood and the design was focused on the behaviours observed. The Ipswich campus positioned the Library with student services on the campus and artfully separated computer study spaces and seating from the books with a water feature i.e. a stream including goldfish. The design focused on behaviour where some

users wanted interaction and others did not. Group study rooms, cafe booths for informal group work, casual comfortable seating, a coffee shop, and interactive spaces were all featured in the various facilities, as well as exhibition space. A new page in library design was turned.

In Canada, the prime funding sources of Canadian universities are the provincial (state) governments. Federal funds are available through various authorities for research, and some of the research funding can be used for infrastructure and new building construction, including libraries. For the most part, academic libraries must rely on internal funds, specially targeted provincial funds or donor funds for substantial work on new library buildings or renovation projects. There have been various successes with obtaining funds for significant projects in recent years. The University of British Columbia in Vancouver has undertaken the construction of the impressive Irving K. Barber Learning Centre/Main Library with its automated storage and retrieval centre operated by a robot and a specially designed Chapman Learning Centre. Queen's University in Kingston, Ontario, has a new library building which paid close attention to wayfinding in its design and layout. The Joseph T. Stauffer Library featuring an atrium approach includes the Queen's Learning Commons and an Adaptive Technology Centre. It is a collaborative endeavour with the Library, Learning Strategies Development, Special Readers' Services, the Writing Centre and IT Services to provide students with a technology-enriched learning environment. Workshops and consultations on study skills, coaching and referral for academic success and course-specific study sessions are provided. Ryerson University in downtown Toronto is building a 21st - century library building. In announcing the new development, the University's President said that the new Student learning Centre would provide an outstanding environment to study and collaborate, to spark interaction and discovery and be accessible, comfortable, digitally connected and ready to adapt to new technologies, developments and services. The "grand dame" of academic libraries in Canada, the University of Toronto, is planning a significant upgrade of the brutalist features of its Robarts Library and an upgrade to service provision. Thousands of new study spaces will be provided and a new outdoor amphitheatre-like area with glass enclosed study spaces and a new entrance. The Université de Laval located in Quebec City is planning a 21st century library refurbishment, seeking to create a better synergy between its collections and its users.

McGill University Library exhibited the features of many libraries in North America. Little had been done to accommodate new cyberspace approaches but in 2005, with the arrival of an antipodean new Director of Libraries, plans were put in place to use any available funds to upgrade the Library's services, and its facilities to accommodate new technology, new learning behaviours and new client-focused service approaches. Concept briefs were prepared for each of the 13 branch libraries and gradually facilities were upgraded. A new Music Library was included in the new Music Building opened in 2005. Upgrades of most branch libraries were secured with the support of the Deans and the Provost. A new much-admired Cyberthèque was constructed in the Humanities and Social Sciences Library. It included four glass study pods equipped with group study opportunities and a large screen for collaborative activity. Booths or banquettes were also placed in the space for informal group study. Quiet spaces for individual study were installed on one side of the space, providing the segregated spaces required to support group and individual study. A large training room was provided with small tables and laptops so that they could be re-arranged

for interactive learning opportunities. Four large screens in the room also facilitated interactive access. Seating was maximized with the use of long desks, with the provision of hard-wired computers provided at 50% of the seating available, with assumed laptop use at the other 50%. The Library lent laptops for this purpose, or alternatively students could provide their own. High benches were installed following models observed in the various Apple stores, and casual seating on colourful ottomans was provided. Other branch libraries at McGill, including the Education Library and Curriculum Resources Centre, the Schulich Library of Science and Engineering, and the Macdonald Campus Library have seen significant renovation to ensure alignment with the Library's vision of focusing on Information, Innovation and Service.   Key to the new approach was student funding and student involvement in planning of the new services being provided, and a committed interior design firm.

Conclusion

Library space design has changed fundamentally in most parts of the world with the impact of new information technology on libraries; the growth of the internet; the impact of Google, the changed behaviour of information users and library clients; economic and financial pressures, the need for sustainability, altered research priorities, the development of multidisciplinary approaches; new methods of teaching and learning; social networking; the need for collaborative activity; new ways of working; globalization; and mobility of users. Are the changes transformational? Is cyberspace being successfully integrated into the physical spaces within libraries? In some parts of the world, the "edifice" complex is still paramount and the construction of library buildings featuring Roman columns, book shapes, and knowledge symbols still abound. The "form follows function" approach emphasizes that library buildings must follow the functions they perform. What may be in question in the twenty first century is what are the functions of libraries and how are they translated into building design.   The Library continues to collect and provide access to information resources; it organizes information and makes it available for use; and it provides services to users. However, the Library is a growing organism. The design of the Library's online services and the design of its physical space must be effectively integrated to provide services to users, which optimize the availability of information in the twenty-first century. The front door home page of the Library's website and the front door of the physical library must be equally easily located, entered and used effectively. The library design showcase for 2011 in *American Libraries* lists specific themes. They are: enhanced functionality, material matters, sustainable construction, navigation and colour, children's and teen's spaces, reclamation and renovation, design details, outdoor connections and community living rooms (Landgraf, 2011). All is alive and well in library design land – online use is transforming library design but there is a plurality of approaches and a healthy examination of all the aspects associated with the functioning of a library.

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