Space development: a case study of HKUST Library

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Purpose: This case study describes the space transformation of the HKUST Library into a Learning Commons and how learning activities have been substantially multiplied by engaging academic and supporting units. This experience is used to posit a number of anticipated directions for Library space planning.

Design/Methodology/Approach: This paper focuses on the design elements of the Learning Commons and how these elements have created an effective platform for a variety of learning activities. It outlines an assessment study on how students liked the transformed space and viewed its added values.

Findings: In the digital era, academic libraries can be transformed for new, effective and collaborative use. By integrating technology and flexible design, the new space excites existing scholars and attracts a broad range of new users. Students, faculty, and administrators react positively to the new space as it offers effective learning ambience. By engaging and co-creating with university partners, the new space functions as an active facilitator of learning – a hub that supports interaction and an effective platform to support pedagogy towards team projects, multimedia work, and whole-person development. Future library spaces need to exhibit characteristics tailored to various user groups and their specific usage needs.

Originality and value: The experience of HKUST library will have broader implications for other academic libraries embracing their mission-critical nature and assets. It shows that libraries can embrace challenges in the digital and virtual world by creative and innovative use of their physical space.

Transformation of Library Space

Space is one of the most valuable assets a library possesses. Space is required to collect, archive, and access recorded information. Space is needed to study, to research, to engage in intellectual pursuits for the betterment of mankind. Changes from the printing press to virtual reality systems have reshaped the scale and scope of the library's role, along with the many changes in learning from shifts in instructional pedagogy to the availability of anytime, anywhere information access to the general populace.

Rapid expansions of electronic information systems have taken the easy and immediate availability of vast quantities of information to dizzying heights, expanding library space into the virtual realm and leading many to envision a future where physical library space would be an archaic and outdated model.

As Kathryn Zickuhr points out while introducing the Pew Research Center's report on library engagement, *"A common narrative is that Americans are turning away from libraries because of newer technology."* (Pew, 2014). Taking this challenge to heart, many libraries have innovatively expanded their service scope, using this valuable and limited resource creatively, and deploying new technologies as positive avenues of advancement in their services. Far from withering on the vine, libraries are maintaining and even expanding as a focal point of intellectual stimulation, discovery, and expansion. As Zickuhr continues, *"the data shows that most highly-engaged library users are also highly engaged with new technologies."*

Technology and space can be complementary, rather than adversarial. Technology alone does not meet all of a person's needs, and people continue to crave a physical location to access information and each other; and *"where one can truly experience and benefit from the centrality of an institution's [or society's] intellectual community"* (Freeman, 2005). As Kylie Bailin states, *"technology and remote access are isolating people, whereas the physical library brings people together"* (Bailin, 2011). This is part of what it means to be a library, and thus it is with the physical space that library planners must maintain the greatest focus.

In the last decade, the concepts and introduction of Information, Learning, and Knowledge Commons have strategically redefined and creatively highlighted new uses of library space. Inside these Commons, new technologies are effectively integrated to meet user needs in the digital era. Often accompanied by aesthetic and contemporary internal designs, these Commons have created user excitement.

This strategic innovative use of space has taken root among academic libraries in Hong Kong. In the following, we discuss the challenges and results of how the Hong Kong University of Science and Technology Library (HKUST) takes this on. In particular we discuss how we successfully engage other university units to co-creatively make use of the new space. As an anecdotal case analysis, we adopt an institutional approach and provide details on the external (Hong Kong's education system) and internal (HKUST's mission and development) contexts that shape our experiences. In the conclusion section, insights and implications are delineated.

Hong Kong & HKUST Library

The higher education system in Hong Kong moved from a 3-year to a 4-year academic structure with diversified curriculum in fall 2012 with 25-30% more students. All eight government-funded higher educational institutions embarked on capital projects to accommodate their increased student bodies. Most academic libraries also repurposed their spaces to enrich students' learning experiences. Fox and Sidorko outline a few case studies on how academic libraries transformed their spaces (Fox and Sidorko, 2013). The City University of Hong Kong focuses on technology, study spaces and interactive learning. The central courtyard provides an open room concept for users to gather and collaborate. The multi-purpose lobby offers flexibility in housing exhibitions, events and functions. The Mini Theatre, built in the shape of an egg, is an inspirational space for music and film appreciation. The renovation at the University of Hong Kong is known as Level 3. It has distinct zones including technology zone, multi-purpose zone, breakout zone, collaboration zone, and study zone. The Learning Garden at the Chinese

University of Hong Kong has a unique long single table, which curves at different points along its track. The table changes its height, width and shape to suit users' studying habits.

The HKUST Library completed a building extension and Learning Commons in 2011 and 2012 respectively, along with similar projects by the libraries of most other universities in Hong Kong. These new building and renovation works provide Hong Kong academic libraries an opportunity to transform and rejuvenate library spaces into more inviting, stimulating, and inspiring places.

Take HKUST as an example, a university established in 1991. Its 58.7 hectare campus, situated in the scenic Clear Water Bay in Hong Kong, houses 538 faculty and 12,584 students in 2014. In just 23 years, the university has ascended to admirable positions on the international ranking ladder, consistently ranked as best among the Worlds' top 300 Asian universities (QS University Rankings: Asia, 2013). With the new 4-year academic structure and added financial resources, the campus has been expanding significantly.

Recent Projects on Library Space

The Library has built an extension of 1,800 sq.m. and renovated an existing 1,800 sq.m. into a Learning Commons. In total the Library provides 3,200 seats, with 62 bookable rooms in 12,350 sq.m. of floor space. The Learning Commons (<http://library.ust.hk/lc/>) provides 600 seats and is composed of 5 zones: Group Study, Open Study, Refreshment, Teaching and Creative Media. There are 17 Group Study Rooms with interactive projectors, PCs or LCDs. The Open Study Zone has furniture of various design and mobility for individual and group use. The Refreshment Zone has sofas, coffee tables, cable TV, vending machines, hot water, and a fantastic sea view. The two E-learning Classrooms are equipped with 33 iMacs and 43 Windows PCs and can combine into one teaching venue. The Tutorial Spaces have 3 partitioned spaces for consultation sessions and tutorials, which may also be combined for seminars or teaching. The Creative Media Zone, managed by the Publishing Technology Center, has a Graphics Workshop for printing, poster plotting, binding, photo printing, and media equipment loans. The Media Production Studio is well equipped for digital photography, AV production, and 3D video screening. The AV Control room, 4 AV Editing Suites and a Dressing Room are nearby. The Learning Commons also includes an open-format Multi-Function Room on a lower floor, able to accommodate 100 participants.

The Learning Commons is designed to feature a variety of spaces and furniture, flexibility in space use, and integration of a student services hub. With its central location and 24-hour operation, the Learning Commons has become an active facilitator of learning, a hub that supports collaboration and interaction, an effective platform to support pedagogy towards team projects, multimedia work, and whole-person development.

The Learning Commons "brings together the functions of libraries, labs, lounges, and seminar areas in a single community gathering place". The strength of a Learning Commons "lies in the relationships it supports, whether these are student-to-student, student-to-faculty, student-to-staff, student-to-equipment, or student-to-information," (Lippincott and Greenwell, 2011) through cutting-edge, learner-based technologies.

The library extension and the Learning Commons also benefitted from being the first campus expansion projects completed, in advance of the new business school and research structure, thus gaining added attention and involvement from campus sectors whose new spaces were not yet available.

Learning Activities in the Library

Since its opening in February 2012, the Learning Commons has housed a wide variety of functions and activities both from the Library and University. The E-learning classrooms have become a venue for a multitude of activities, including workshops in media production, computer music, dance video, student advising and industrial training. They are also heavily booked for tutorials of math, physics, and languages; along with academic programs and research projects such as personality assessments. The Production Studio shoots MOOCs for faculty and videos for students. The Tutorial Spaces and Group Study Rooms often have bookings for new faculty orientation, HR training, student club meetings, career counseling, interview practicums, academic advising, social programs and events, and faculty consultation with students. The Refreshment Zone is where the President greets and meets monthly with students for tea to solicit feedback. Figure 1 shows selected learning activities of over 3,000 hours per semester since the Learning Commons opened.

Learning Activities (in hours)	Fall 2012	Spring 2012	Fall 2013
Tutorials	652	1,100	1,104
Classes/workshops/trainings	825	891	933
Career/counseling/consultation	844	729	1,114

Figure 1: Learning activities in the HKUST Library organized by library, teaching & academic support units

A few other renovations of library space have also changed the use of the Library. The Multi-function room together with its companion outdoor terrace provides a venue for different activities such as library information literacy classes, departmental seminars, meetings, book talks, writing workshops, art classes, art demos, book launches, and alumni receptions. Users find this space convenient as reception catering and refreshment breaks can be arranged.

The Special Collections Gallery provides a second exhibit space in addition to the larger Gallery at the Library's main entrance. Gallery tours and talks are packaged into these exhibitions. When the exhibition *"Splendor of the Past, the Spirit and Form of Ancient Chinese Ceramics"* was held for two months in 2014, the art collector conducted 20 gallery tours and a talk for 300 students and staff interested in ancient Chinese ceramics. This Gallery was also designed for flexibility and multi-purpose principles - it is also used for meetings, including ceremonies and functions by the University's senior administrators.

Engaging and Co-creating with Partners

It was through a series of strategic plans and promotion that these diversified activities are held in the Library. Different stakeholder groups were engaged in feedback activities. Chan and Wong (2013) outlined a vigorous user engagement promotion plan with the 5W elements – *Who says What to Whom through Which channel with What effect*. This plan was launched before the opening of the Learning Commons. With it in full operation, there has been continuing close partnership and deep collaboration

with various academic schools, Student Affairs Office, Publishing Technology Center, and other campus services. This involved aspects of both the convergence and co-location sharing models recently explored by Leo Appleton (in Matthews and Walton, 2013). Integration into curriculum and students' co-curricular activities are also of utmost importance. For example, some common core art courses and Healthy Lifestyle programs reward students for attending exhibition gallery tours, art talks and art demo organized by the Center for the Arts and the Library. Students are given attendance credit when they participate.

Technology plays a pivotal role to enable a digital interface for users to share their comments and art appreciation. Internship programs for student helpers to provide technical and customer support are essential so that they feel proud and cool serving in the Learning Commons. As a result, the renovated Learning Commons and the Library Extension have become the magnet, drawing people into this space. Prominent visitors are regularly invited to the Learning Commons. Current and potential donors are escorted to the Learning Commons to see the variety of student activities. Students visit exhibitions, admire artwork displays and attend art demo and book talks in the Library. In the past most of these activities were held in offices, meeting rooms, lecture halls, and exhibition halls scattered throughout the campus. Now these campus partners selectively choose to move their activities to library space where students gather, learn, and participate in other intellectual activities.

Impacts and Feedbacks

An assessment study was conducted in spring 2013 (Wong, 2014). It had 3 parts: student focus groups, student survey, and partner survey. Of 886 student respondents, a high majority (90%) rated the Learning Commons as important or very important. Other factors such as 24-hr operation, study rooms, study space and the Refreshment Zone were also rated very highly. These figures validate the focus group feedback that students like the Learning Commons for the good study space, study rooms, relaxing atmosphere, and long opening hours.

We use standard metrics to measure the usage of the Learning Commons. These include gate counts, head counts, computer logins, printer logs, software usage, loan data of accessory items, question logs, and room booking statistics. All data collected show heavy usage with a steadily growing trend in its two years of operation.

Wong (2014) finds that many students view the Learning Commons as a value-adding component of the Library. Because of the Learning Commons, they stay longer in the Library, come to the Library more often, and feel more positive towards the Library. To the question "what does Learning Commons (LC) mean to you?" there were 569 meaningful answers, including:

- *"is the fountain of my university life and I can't accomplish much without it."*
- *"I am proud of the LC, which I would regard as an indispensable part of the library."*
- *"like my second home."*
- *"It has become part of my university life."*
- *"I come here every day from 09:30 - 2300 and I love spending my time here."*
- *"The learning commons is a new place, where if you're there, you're the 'cool but smart' student."*

- *"It is one of the reasons of my good gpa!"*
- *"A+"*
- *"I spend all my time in Learning Commons for study when I have no class. My life!"*

Students perceive the Learning Commons as a space with different aspects, including using equipment for learning purposes, working, studying, meeting peers in different context, relaxing, and being an all-in-one place for campus life. HKUST's experience seems at odds with the results of the Finland study discussed by Lehto, Poteri and Iivonen (in Matthews and Walton, 2013). The "second home" mentioned by a student at HKUST aligns with the library fulfilling the "third space" concept (Oldenburg, 1991). This third space is a place people like to visit after home (first space) and work or school (second space). In the university environment, the library is the third space where students come together after the dormitory and classroom.

A "tag cloud" made from the frequencies of keywords from the student comments visualizes the positive sentiment students have towards the Learning Commons. The keyword that stands out the most is "Space". This suggests that students find a comfortably designed and technologically integrated space offers them the proper ambiance for effective learning. The space needs to be well managed, flexible and constantly re-aligned to cater to a variety of needs. With a well-designed and welcoming space that could engage the stakeholders, students come, faculty come, academic departments come, student services come, counselors come, visitors come, administrators come, even the donors and the President come.

The space has been so successful that several other units have incorporated some of its physical and operational elements into their own space redevelopments. These include the School of Science's *SCI|Home*, the *Engineering Commons* and the *Language Commons*. These spaces also provide rooms for small group consultation, advising, group works and practice. The atmosphere encourages socializing, interaction and collaboration.

The library space gels people in the community together. Twenty months after the Learning Commons opened the student newspaper published an article titled, *"Tribute to my beloved Library"*. This love letter carried the line *"I am proud of her...I have fallen in love with her...who has had such intimate relationship with me, beyond life and death. I wish I can just habituate inside the Library"* (Victoria, 2013).

Into the Future

The successful user engagement process, which led to the wide variety of learning activities at HKUST Library, sheds some light on the future of library space. We view our experience as highly specific and limiting. It is confined to the institutional context and the colleagues involved. As a result, our experience does not provide direct answers to many uncertainties. However, a number of insights can be derived. Based on our experiences of spatial transformation of the library, we envision the future library space may display the following characteristics:

A learning space. The library in the future will continue to play its important legacy role as a place. It is still a communal space where learners can study earnestly, while maintaining the tradition of the library as a place for students to engage in quiet, solitary, and contemplative study. Self-study is still the most

frequent activity as revealed in HKUST's Learning Commons Assessment Study with 63% for research postgraduates, 64% for undergraduates and 75% for taught postgraduates. They love to study in an environment where they see other members of the learning community are also engaging in reading, writing and other kinds of intellectual reflection. *"Being seen studying"* or *"seeing others study"* seems to be a valuable stimulus in their learning behavior (Montgomery, 2013). The strategy for future learning space should focus on how to design and rejuvenate space for effective and inspirational study and learning.

A research space. In addition to traditional print-based research and its electronic counterpart, the library is being called upon to facilitate the collection, storage, manipulation, and usage of increasing amounts of research data. These demands provide another space opportunity, with growing calls for support of data manipulation and visualization. Many research libraries are creating space where researchers can visually manipulate and analyze available data sets. This can be a potent advantage, but the equipment and staffing expertise to do this properly can be significant. As with other new technologies, from video equipment and word processing software to 3D printers and Adobe Creative Suite, this is another example of the traditional library role of providing shared community access to *"expensive and scarce"* resources (Pew, 2014). One strategy for future research space resides on partnering with researchers to design visualization space.

A social space for collaborative learning. John Seely Brown observes that *"learning is a remarkably social process"* (Brown, 2002). Of course there are times when students need to focus and study alone. There are also times when students need to come out from their cocoons and interact, discuss, debate, bounce around ideas, and defend viewpoints with other learners. In the social dimension, students learn from group discussion, open conversation, collaborative inquiry, and peer interaction. In fact, they *"do not see studying and socializing as polar opposites"*, and Bailin's analysis of the research available agrees (Bailin, 2011). Libraries can satisfy that need by providing informal learning spaces where social learning is encouraged (Bennett, 2006). Brown also suggests *"social learning environment offers exposure to multiple communities of scholars and practices, giving students broad access to people from different fields, backgrounds for intensive study"* (Brown, 2002; Bennett, 2006). Some spaces in the Learning Commons provide this kind of informal space for social learning.

Montgomery conducted surveys before and after library renovation. To the question, *"what is it about this space that works well for you"*, she found that users frequently commented on the ability to work in groups and collaborate – and this was true both prior to and after the renovation. This kind of collaborative space supports students' social learning behaviors (Montgomery, 2013). The Ithaca Library Survey (Long and Schonfeld, 2014) has chosen 24 library functions for library directors to rate. One of the two rated as a high priority by the largest percentage of respondents (about 90%) was *"providing a physical space for student collaboration"*. At HKUST, student focus group comments on the Learning Commons included:

- *"More freedom to speak and discuss, there is no other place where we can gather together like this. It's unique"*
- *"The interior design inspires me to reflect, it is unlike the Library. Previously I thought[t] a library is only a place for studying alone, and now I see that we can learn from each other"*

- *"I can study, meet friends, get a drink, get inspired, feel free"*

This social aspect also affects plans for quiet study areas, which traditionally are kept separate from social space. Today's net generation tolerates background noise quite well, and some could not study without music. In fact, Cunningham and Tabur (2012) stress that "*students often suggest individual or quiet spaces be located near group spaces, or at least on the same floor*". This is at variance with the popularity of planned spatial zoning for management of noise levels and other factors. Such floor zoning has been quite successful at the HKUST Library, both in the zoned design of the Learning Commons and in the designated Quiet Floor below it. Those who most like the Learning Commons style often remark on the advantages of its social aspect, being a place where they can find their friends and also study, and yet some of them would also like to see more individual and quiet offerings in this space. Any strategy for future social and collaborative space should provide diversity and support both functions in an inviting and appealing setting.

A cultural space. The library provides the collection: print, electronic and multimedia. These resources support the curriculum and research. The library plays an important role in fostering general education, holistic and whole person development. Future libraries should also serve as a mini gallery, museum, and art center. Through cooperation with collectors and artists, libraries will continue to arrange exhibitions, art talks, demonstrations, and tours to inspire and nurture students in different dimensions. The University of Technology in Sydney serves as a cultural hub, providing inspiration to drive inquiry, wonder, and imagination. It also assists in encouraging cross-disciplinary learning and research initiatives and innovation (Booth, Schofield and Tiffen, 2012). HKUST students' preferences are somewhat similar. In the Learning Commons Assessment Study, 41.4% of student respondents desired more cultural events, talks, and small scale performances. Although HKUST Library stages about 20 exhibitions, artwork displays, book talks and art demos per year, in addition to those organized by the Center for the Arts, students still want more. Strategy for future cultural space should provide the visual and sensory stimulation in a learning environment that further connects creativity, imagination and intellectual association.

An innovative space. The library has always been where information is gathered, knowledge is learnt, and wisdom is gained. During the learning process, students discover new ideas, gain new insights, and acquire new skills. Educators want to nurture innovative thinking among our students. Tony Wagner suggests five steps. Educators must emphasize more on collaborative rather than individual work. Youth must experience multidisciplinary learning. Youth must learn through trial and error. They must experience learning through creating rather than through passive consumption. Educators must establish intrinsic motivators in young people (Wagner, 2012; Southon and Vespa, 2013). With the emerging trend of providing 3D printing and makerspace in the library today, a future library should be a place where concepts and ideas could be translated into a creation, a production, a product, or a career portfolio. The State Library of Queensland has built The Edge (<http://edgeqld.org.au/>), a laboratory for the next generation of library users to explore creativity across the arts, technology, science, and enterprise. The three media labs enable many activities in a space that facilitates creation.

Libraries should facilitate creation, whether for a book, a model, a poster, a research project, an invention, or a multi-media production. To celebrate and showcase the success, outputs displayed in the

library space will be inspirational to some and further foster creativity and incubate innovation for others. Strategy for future innovative space should provide the place and tools for innovators to create, construct, remake, innovate, and invent.

A flexible space. Library users are not a one-size-fits-all population, nor are their requirements able to be standardized – changes in educational pedagogy, technological ubiquity, and social flexibility require all aspects of library space to be as flexible and multi-modal as possible. In addition to providing an array of spaces, tools, and support for skills development and expression, library design needs to provide a sense of empowerment. Users should be able to customize their environment not just by having adjustable chairs or movable whiteboards but through local controls for heating and cooling, individual switches for room and task lights, and automatic sensors and timers where appropriate (Loder, 2010). These empowerments will also provide cost savings and be in line with growing institutional moves towards sustainability.

Providing comfortable, configurable, and movable furniture is also of great benefit. In line with Olaf Eigenbrodt's thoughts (in Matthews and Walton, 2013), the HKUST Library set aside two areas with completely user-reconfigurable furniture. But response has been mixed, with many preferring the more abundant electrical outlets built into fixed-location tables. Rapid advances in battery and power technology should reduce the need for so many sockets and expand options for adjustable furniture arrangements. But for the next ten years it is better to add as many power outlets as broadly as possible.

An open platform. Borrowed from insights in technology innovation, future library space should adopt an open platform approach embracing openness and modular configuration (Parker & Van Alstyne, 2011). Parker and Van Alstyne explain that Apple is killing the standalone platforms of Amazon, Sony and Microsoft by providing an open platform for users to make phone calls, listen to music, watch videos, play games, surf the web, and read e-books. Library space is an open platform where multiple parties can use space and organize learning functions and activities to fit a diversity of needs. Partnering units can co-create and add value to what the library offers. The multiple parties of academic and supporting units bring in their own user groups, leading to a non-linear increase in the number of users. The openness of HKUST's Learning Commons has resulted in an exponential increase of learning activities in each semester (now about 3,000 hours). And the relaxed control of food, noise and cell phones in certain parts of the Library has facilitated more functions with social components. Additionally, different units bring in financial resources in collaboration with the Library in organizing snack breaks, exhibitions, student artwork displays, and other functions. This open platform fosters collaboration and gels unity between the Library and these user groups. The Library's innovations in Learning Commons and 7x24 hour extension have increased the number of users and the open platform has further raised user numbers. A strategy for future space planning resides also on its openness.

Embrace the brand. Let the library be The Library. In addition to all the new directions, changing user behaviors, and everything else, a number of studies have found aspects of traditional library environments remain very highly thought of. Rather than jettisoning the past, libraries should embrace and update those elements that nurture positive and aspirational attitudes. This could involve emphasizing a dramatic entry portal or renovating a large old reading room with modern elements while

retaining its grandeur. Cunningham and Tabur (2012) cite a number of studies arguing “*traditional library spaces, through affective resonance or simultaneous perception or some other means, are able to harmonize the student experience with the principles and goals of higher education.*” Focus groups at HKUST Library seem to validate this, with calls for the creation of a special “deep quiet” zone with fancier comfortable furniture and the retention of walls of bound theses, which further emphasize the scholarly nature of the joint enterprise.

How should librarians respond? Librarians need to keep track of the drivers and trends, and be prepared for the coming challenges. Focus groups, surveys, observations, and direct chats are effective means to learn of users’ needs and changing usage patterns. Librarians’ equipping themselves in technology, skill sets, communication, liaisons, and outreach are essential. Library staff should be innovative, experimental, risk-taking, proactive, open-minded, flexible, adaptable, and ready to take on duties that are not well-defined. Library staff must also design future library space to align with new learning needs and engage users; and manage space to maintain its vibrancy, inspiration, and welcoming environment. Library staff need to be knowledgeable facility tour guides, resource and exhibit curators, event and activity organizers, and function moderators. They need to come out from the office and from behind the counter, show their presence, and participate and engage in different kinds of learning functions and activities happening in the university community.

Engage the senses. It is always important to keep the broader picture in mind. In 2003, Fred Kent of the Project for Public Spaces defined four characteristics for creating desirability: access and linkages, uses and activities, sociability, and comfort and image (Kent and Myrick, 2003). Almost ten years later, two librarians from the University of Toronto took those characteristics and mapped them onto the framework of Maslow’s renowned Hierarchy of Needs (Maslow, 1943). The result is their Hierarchy of Learning Space Attributes (Cunningham and Tabur, 2012).

Figure 2: Hierarchy of Learning Space Attributes (Cunningham and Tabur, 2012)

The pinnacle of this hierarchy is the sense of the new library as a place of shared scholarship and growth – an attribute as much of psychology and feeling as of concrete provision. A place where all feel somehow individually and collectively challenged and ‘raised up’, imparting a more positive psychological component to the space, whether they be called students, researchers, scholars, users, or patrons.

This visualization of a pyramid building on a base of collections, information access, instruction, collaboration, community, and discovery provides a refresher of the foundations and process libraries move through. Its main problem is considering the top of the pyramid something to be added on as the final crowning glory. In actuality, it is an aspect that must be imbued throughout every other facet of the hierarchy – as part of the goal for every building project, transformation, renovation, and rejuvenation. Without it, libraries find themselves with many positive elements and all the expected ‘bells and whistles’. With it, the library provides a sense of passion and transcendence.

Conclusion

Never forget the mission-critical asset of an academic library – the space. Along with other assets entrusted to and built up by it – collection, technology, services, staff – the academic library strives to demonstrate its academic value to its community. Although libraries are moving towards virtual space, digital collections, cloud technology, and online services - with library staff embedding themselves in Learning Management Systems, MOOCs, teleconferences, webinars, and virtual reference - do not forget that we still live in a physical world. People need to come down to earth from the cloud and out from the virtual reality.

In the collective imagination of 2,900 ACRL members on 26 possible scenarios that may impact academic libraries over the next 15 years, one scenario is of academic libraries out of business. They will be less visible and less necessary. Another scenario has them existing only virtually with no physical home. Yet another scenario shows learning spaces transformed so that students can smell in a classroom and hear in an auditorium as students learn experientially through images, sound, taste, and smell in addition to text (Staley and Malenfant, 2010). If future library space does not continuously transform to satisfy users’ learning needs, libraries will go out of business, with no physical trace.

Delightfully, many libraries today continuously embrace the new challenges. They provide visionary use for physical space that weaves technology and aesthetic design to support effective learning. In these new “spaces”, students study textual materials. They learn through seeing images and listening to sound from the multimedia and digital resources in its physical or virtual spaces. They also learn through touching exhibits and artworks in the library gallery and multi-purpose studios. By engaging and co-creating with partners, these new “spaces” function as platforms for innovative learning experiences. The choice between physical and virtual space is not exclusive, rather, they complement each other through creative balance. In sum, we believe that digital access is mission critical, and maintaining physical presence is equally salient. Perhaps the physical entity that houses these kinds of learning activities may not be called “library” in the next 15-20 years (Baker, 2013). Could it be called “The Space”?

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