Combining Assessment Data and Usage Metrics to Drive Learning Space Development: experience at the HKUST Library

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Introduction

The Hong Kong University of Science and Technology Library (HKUST Library) currently operates a highly popular learning commons and a well-used information commons. This paper reflects on how the Library has been using an iterative process of planning and evaluation to develop learning space phase-by-phase towards the commons model. It summarizes the effort in monitoring and assessing space and facilities at the HKUST Library since 2006; and emphasizes the importance of feeding evaluation data into the space planning cycle, using one major assessment project as an illustrative example.

Space Development at the HKUST Library

The HKUST Library has been continuously developing its space to meet the changing environment and user needs. We have had a number of renovation projects since 2006. Along the journey we have been keeping record of a good range of usage metrics, and conducted a number of surveys and studies. The data is usually fed into the space development cycle and guides us through every phase of the change.

Our story started in 2006 when we repurposed about 400 sq. m. on the main floor to create the Information Commons (IC) as a pilot project. Following the trend in many academic libraries worldwide to provide integrated, technology-rich learning facility (MacWhinnie, 2003), the HKUST Library consolidated the reference collection to spare the space for the project (Wong, 2009). In 2009, supported by the positive usage and users’ satisfaction rating, the Library expanded the IC to about 600 sq. m.

In late 2000's, the higher education in Hong Kong was preparing for a major change. All the universities were to migrate from a 3-year system to 4-year system in 2012. In this connection, the HKUST Library had the opportunity to build an extension next to the existing building. We were glad that we took the initiation to develop the IC in 2006; the experience became the foundation for us to design a learning commons after the 1,800 sq. m. extension was completed in 2011.

The Learning Commons (LC) was open in 2012. In 2013, we undertook a systematic assessment survey. The positive results motivated the Library to propose a funding request to the university to refurbish a portion of the existing space into a “commons”-style environment. After a series of modification and justification of our plan, the Library obtained the resources to conduct the Learning
Space Enhancement Project. We renovated a total of about 1,000 sq. m of space on two different floors, which was opened for users in early 2015. The pivotal 2013 assessment will be described in more detail in later sections of this paper.

The space projects at HKUST Library are powered by evidence. For every step of the project cycle, from planning, designing, building to refinement, we base our decisions on our understanding of users’ preferences and needs, which in turn come from our meticulous approach to collect assessment data.

Collection of Assessment Data
The data we collect for assessing space, facilities and services consists of two complementary approaches: usage figures, which are usually consolidated monthly; and occasional surveys and studies, which are conducted irregularly.

Usage metrics
Usage is monitored in three areas:

Use of computing facilities
The computer login/logout records allow the Library not only to count how many users use our workstations and for how long, we can also understand the pattern of different user groups, and their preferences to workstation locations and types. We also capture software usage and printer traffic.

Warm body traffic
We systematically record head counts and exit gate counts. In the Learning Commons, these are taken hourly. The head counts are most useful when assessing occupancy; it is usually the first type of statistics that university administrators have in mind when they think of space usage. We find that head count, when compared with gate count, is a better metrics representing usage. Exit gate count measures the flow of people, while head count is the solid figure about how many users are using the space.

Service transaction
At our service desks, all questions and assistance to users are recorded at an online tallying system, with details including date, time, user types and question types. This helps us understand what kind of assistance our users need at different service points.

Our technology lending system generates monthly reports, from which we can see what are popular, and what needs more stocks. It reveals technological trends such as the overtaking of HDMI cables over VGA cables in checkout counts.

The online room booking system provides the third category of service metrics. At HKUST Library, there are about 50 group study rooms, and a few teaching venues. The Library values and actively promotes collaboration with campus units. Our venues support academic activities organized by the Library as well as our campus partners. The venue booking volume, partners, and types of activities are summarized at the end of every term.

The Library introduced 3D printing service in September 2014. The usage is recorded, including information about the users and the objects. Capturing details of such a new service is particularly important as we had absolutely no prior knowledge about users’ responses and needs.
Surveys and studies

Since the launching of the Information Commons in 2006, we have conducted surveys and studies of various nature, with different purposes to assess space and facilities use.

**User satisfaction surveys in 2007 and 2009**

These two surveys were relatively straight-forward questionnaires that solicited users’ feedback on the new IC; they aimed to find out more about users’ behaviors and satisfaction.

**The Help Desk Transaction Study in 2009**

This study analyzed a sample of questions handled at the Information Commons Help Desk. The findings helped us to plan staffing, make staff competency list, and design effective training (Wong, 2010).

**The Learning Activity Study in 2010**

As part of our preparation to design the Learning Commons, we conducted this study to find out what students do at our Information Commons. Multiple approaches were used to collect data:

1. Focus groups – two groups to find out how they used the space and facilities
2. Login/logout data at IC workstations – monthly login counts profiled by student status
3. Activities log at IC workstations – the computer use of 100 randomly sampled, anonymous users during Fall 2010 was captured
4. Learning activities recorded by students using questionnaires – 118 valid questionnaires were collected
5. Space study at different areas at the IC – hourly snapshots of physical space use on 31 sampled days recorded manually

The findings was very rich and complex. It showed the diversity of students’ habits, learning modes and multitasking styles. It provided data to support what we have observed anecdotally.

**User consultation in 2010 and 2011 through focus groups and forums**

In late 2000's, in the context of higher education reform in Hong Kong, the HKUST Library embarked on the capital project of extending the existing the library building with 1,800 sq. m. of new space. We took this opportunity to propose a learning commons, which was then a new concept among the university community.

In order to understand users’ needs and expectations, we hosted focus groups and open forums to solicit input and feedback. We also used the platforms to promote this new model of library services and space. A total of three sessions of focus group meeting and two open forums were held.

**LC 2013 Assessment**

The Library conducted this assessment exercise in Spring 2013 to let us assess how students and service partners had used and perceived the Learning Commons, and to identify areas that require improvement. We aimed to get qualitative data that complement the usage figures we had been collecting, to give a fuller picture of how this new service plays its role in students learning.

The data collection comprised of 3 parts:

1. **Student Focus Groups:** we talked to 3 groups of a total of 21 students
2. Student Survey: an online survey, we received 886 responses.
3. Service Partner Survey: an online questionnaire, we received 32 replies

Learning space design workshops in 2014

In 2013/14 academic year, the Library initiated the Learning Space Enhancement Project to refurbish about 1,000 sq.m. of existing space to the “commons” style. As an attempt to steer our plan to align with students’ needs, we conducted three sessions of design workshops. The idea was inspired by similar workshops at the University of Rochester (Gibbons & Foster, 2007). Students recruited were asked to reflect on their learning needs in the sessions. After a short briefing about the Library’s project, they were given some sheets of Library floorplan on A3 paper to play with their ideas of library space. A lot of interesting thoughts we collected helped us to think out-of-the-box of librarians’ mindset.

Use of Assessment Data

The assessment data powers our space planning cycle. We actively use the data to plan subsequent projects, to request and justify resources from the university administration, to design user-oriented learning space, and to fine-tune existing services and facilities.

Here are three examples of how assessment data drove changes at HKUST Library:

Obtaining funding to promote the Information Commons (IC) from pilot phase to the next:

The high usage of the IC, as evidenced mainly by the computer login/logout usage figures, together with the good satisfaction rating we received at the 2007 survey, supported the Library to secure another round of funding from the university administration. With the new resource, the Library expanded the IC in scale, provided more varieties of space and facilities, and sustained the staffing.

Accommodating students’ need for group as well as private study:

There are about 50 group study rooms at HKUST Library. Private study has been supported by traditional individual study carrels which were in place since the Library opened over 20 years ago. We have no individual study rooms. In the LC 2013 Assessment, many students commented that group study rooms were always fully booked; they also called for private study rooms. The heavy room booking usage figures corroborated with students’ comments. However, due to physical building limitation and shortage of space, we were not able to create solitary rooms, nor to convert group study rooms into private rooms, as their demand was also supported by usage figures. After balancing many factors, we tackled the situation by two actions: tightened up the room booking rules in order to reduce abuse; and plan for higher privacy seating in the upcoming round of space project, the Learning Space Enhancement Project.

During the discussion to address this issue, we considered data from multiple sources. This case demonstrates how reliable, well-interpreted data is particularly crucial for decision-making in a situation that involves conflicting needs and limiting resources.

Obtaining funding for the 2014 Learning Space Enhancement Project

The LC 2013 Assessment collected a lot of encouraging data. Students rated the LC as very important for their student life, and gave voluminous comments on the positive side. The Library used the assessment report, supported with usage figures such as head counts and learning activities statistics, to make a request for resources for the next round of space project. As a result
of active and constructive negotiation with the university administration, a good sum was allocated to the Library to carry out the subsequent Learning Space Enhancement Project. About 1,000 sq. m. of existing library space was refurnished with minimal renovation work. New furniture arrived in February 2015, in time to receive students for the Spring term.

The LC 2013 Assessment was one of the major assessment surveys we conducted in recent years. It was successful not only because the result contributed to further funding, but it produced evidence of the impact that library space has on student learning. The next section illustrates how this assessment survey was designed, and highlights three salient features that contributed to the project’s success.

Taking the LC 2013 Assessment as a Case Study

As described in previous sections, the LC 2013 Assessment aimed primarily to collect data to complement our day-to-day usage data. There are many areas that usage data cannot tell us; we were particularly interested in students’ personal experience when using the LC, their perception and feeling of this space. With this general target in mind, we came up with a strategy: we first conducted focus groups with students to explore issues about their thoughts and feelings; from there, we designed a brief questionnaire to systematically collect responses for particular issues. Apart from the focus groups and student questionnaire, a questionnaire for service partners was conducted as the last part of the Assessment project to solicit feedback from the Library’s campus partners. The strategy of the survey design and the results was detailed in a 2014 paper (Wong, 2014).

This survey successfully collected a large amount of useful data. From the hindsight, we could attribute the success to the three salient features illustrated below.

1. The use of active listening to conduct focus groups effectively

In the context of this survey, the focus groups helped the Library in two ways: to collect students’ views, as the majority of focus groups do; and to reveal themes about students’ perception of using the LC. The focus groups were facilitated by librarians. To prepare for this duty, they were first briefed with guidelines based on active listening skills. Key skills include:

- Using open questions
- Guiding conversation without hinting, anchoring, priming
- Paying attention
- Holding your judgment
- Avoiding interrupting students
- Paraphrasing to acknowledge comments or clarifying questions

The three focus groups were conducted pleasantly. The participants appeared to enjoy the discussion. The active listening skills helped us open the dialog and collect useful comments. Apart from the many suggestions for improvement, we observed that students talked about what this new space meant to their learning, and that how they thought differently about the Library after the LC opened. These two themes turned out to be instrumental in the subsequent questionnaire design.

2. A thoughtful and critical approach in questionnaire design

Survey-fatigue is a world-wide phenomenon. For a questionnaire that aims to solicit users’ perception, it is particularly important to stay focused and concise, in order not to impart a negative feeling that may reduce the completion rate or shadow the response. In deciding what questions to
include and how to phrase them, we considered many factors critically, such as whether a proposed question was align with our survey objective; whether the responses would be meaningful or usable; how the responding students interpreted the question, etc. We also incorporated the two themes identified from the focus groups into the questionnaire; they were phrased as question 5 and 6:

“Q5: In one sentence, describe what the Learning Commons means to you”

“Q6: How has the Learning Commons changed the way you use the Library?”

These two questions invited many meaningful comments, many of which demonstrated how the LC created real value to students learning. They became powerful qualitative data that illustrates the Library’s impact.

3. Audience-specific reporting

Reporting the survey findings is as important as data collection for an effective assessment project. After the data analysis, we channeled the results through two separate paths: an internal report for the Library, and an impact report for the university community, in particular, our administrators.

The internal report documented the survey logistics and all the results. It aims to organize students’ feedbacks by its relevance to the Library’s functional units, so that different groups in the Library organizational structure can comb through them easily to identify follow up actions for remedy or improvements.

On the other hand, the impact report was written in a completely different tone. It summarized the findings at a high level, sketched a picture of how students viewed this new space called the LC. It highlights the value of the space for students’ learning, using the importance ratings (quantitative) as well as students’ written comments (qualitative). Quantitative data was presented in clear charts; qualitative data was depicted using word-cloud and relational graphics. The impact report was informative, yet easy to read.

These three key features of the 2013 Assessment contributed to the success of the exercise. It brought about many follow up improvements in our learning space, together with subsequent funding and support for another space project.

Conclusion

This case study demonstrates that daily usage metrics and timely assessment are essential to inform library space development to meet user needs and achieve desirable outcomes.

It is very important to put assessment data into good use: it should be analyzed carefully, and interpreted sensibly; it should be distributed properly internally within a library, and presented skillfully to external audience to demonstrate library impact and value. Having made great effort to achieve these, the HKUST Library brought positive differences in space project effectiveness and outcomes.

References


