ASSESSMENT AT THE HKUST INFORMATION COMMONS

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ABSTRACT

Purpose - To document the assessment program of the HKUST Information Commons during its pilot phase.

Design/methodology/approach – The article reports how the HKUST Library uses usage statistics and a satisfaction survey to identify users' needs, expose strengths and weaknesses of the service, and set direction for future development.

Findings – The assessment data reveal a lot about users' needs and behaviors. Such information helps the Library to refine the existing service, and compose a sound proposal for expansion.

Originality/value – The paper explains the approach to assessment at the HKUST Library; it describes the analysis of usage data and survey results in details.

Keywords – Information commons, Assessment, User surveys

Paper type – Case study

INTRODUCTION

The Hong Kong University of Science and Technology (HKUST) is a major research university in Hong Kong. In the academic year 2008/2009, it has over 9,000 students; about one-third of the population is postgraduates. Currently, the university offers a three year undergraduate program. Under the higher education curriculum reform, all government-funded universities in Hong Kong will be implementing a four year undergraduate education from 2012. This landmark in the university’s development will not only bring a considerable growth in student body and faculty, it will also mean that the Library needs to explore and adopt new services to support the learning and teaching under the new curriculum and institutional goals.

The University Library is centrally located in the campus with a floor space of over 10,000 square meters. The Information Commons (IC) was launched in September 2006 as a pilot phase. The main IC area is located on the entrance floor of the
Library building. The whole IC consists of over 50 workstations, networked printers, scanners, presentation rooms, collaboration spaces and a designated help desk. The project was supported by a special funding from the university’s Vice President for Academic Affairs, in response to a budget proposal submitted by the Library Director, Dr. Samson Soong. The funding covers the physical facility and the opening of two technical positions carrying the title of “Information Commons Officer”.

This paper describes how librarians at HKUST assess the IC pilot phase by analyzing usage data and conducting a user survey.

INFORMATION COMMONS AS A NEW SERVICE MODEL

The service model of information commons had been discussed and explored for a number of years in the library literature; many successful cases were already implemented in libraries worldwide.

Since information commons was conceptualized as a model for service delivery in this highly complex and fluid digital environment (Beagle, 1999), the development of information commons picked up momentum. The new model is not only about the services themselves, but also encompasses new perspectives on services (Tucker, 2007). The commons should adapt and evolve to become Commons 2.0 that foster learning in creative ways (Sinclair, 2007). While the service model is being explored, increasing attention is drawn to measuring impact, and the emphasis of linking the facility to students’ learning (Lippincott, 2006).

Libraries in different parts of the world have been implementing the service model in a wide range of scale with encouraging results. The name of the service may vary but the core service ideals remain essentially the same. Case studies outline many success stories and lessons learned in libraries in the United States and Canada (MacWhinnie, 2003; Bailey and Tierney, 2008). In December 2007, the International Conference on Information and Learning Commons hosted by HKUST showcased a number of commons in the UK, Australia and New Zealand; among them are the Saltire Centre in Glasgow, the Learning Commons at the Victoria University, and the Information Commons Group at The University of Auckland.

Despite the substantial literature on the concept, management and operation of information commons, such innovative library services with a focus on integrating workspace, services and technology remained rather a novel one to university communities in Hong Kong. The pilot phase of the HKUST IC became an important project from a strategic point of view. It serves to demonstrate the great potential of information commons for facilitating teaching and enhancing the learning experience for students. The success of the project would rely on vigorous assessment programs that produce data to prove its service value and to support service planning.

THE NEED FOR EVIDENCE
At the opening ceremony of the Information Commons on September 22, 2006, most guests were amazed by this fresh look of the main floor of the Library, with the impressive state-of-the-art computer hardware, and the elegantly designed furniture. Many of them, verbally or non-verbally, took this facility as the “computer center” in the Library. This was among the first of many instances that kept us alert of the importance of demonstrating the true value and potential of the IC to the HKUST community.

The pilot phase of the HKUST IC is modest in scale. The one-time special funding from the university administration committed to support a two-year operation of the facility. It was part of the strategic planning of the Library to use the pilot phase to gain experience in running an information commons, then seek expansion in the next phase in 2008. The project would become a foundation for the space planning of the Library expansion project to be realized in 2012, when the university moves towards the new 4-year program.

With this background, one can see why it is crucial for the Library to prove the service value of the IC, not only to the university administration, but also to other service units of the university and to our faculty and students. We need evidence.

The purpose of evaluation is to provide the evidence for:

• development of services and programs
• improvement of services and programs
• informed decision making
• accountability to show others that the services and programs are effective
• demonstration of value or worth of an information service to the user’s life or work (Dudden, 2007)

All of these points apply to the situation of the HKUST IC. We need assessment data to develop new services and improve existing ones; we need assessment data to support decision making in service planning and strategic planning; assessment data certainly helps us to demonstrate accountability to funding offices, and to demonstrate our value to users for service promotion.

What does “assessment data” actually mean? In this discussion, we are taking “assessment” in its broad meaning.

**ASSESSMENT IN ITS BROAD SENSE**

“Assessment” may be interpreted differently in different context. In the discussion of performance measurement, the terms “assessment” and “evaluation” are sometimes used interchangeably. For the purpose of impact evaluation, Markless defined “Assessment” as “judging people’s knowledge or skills, esp. their educational performance”; and “Evaluation” as “judging systems and services” (Markless and Streatfield, 2006).

For the HKUST IC, assessment is not only about checking its performance, it is equally important to assess users’ needs and service environment.
In this discussion, we take “assessment” for a broader meaning. It covers the effort to gauge the changing environment, as well as to measure the performance of the service.

In planning assessment program, we find it helpful to distinguish the two domain of assessment: external and internal.

**EXTERNAL DOMAIN**

An assessment in the external domain is about assessing the service environment and the stakeholders’ needs.

With the accelerating changes in communication technology, education technology, institutional goals, students learning mode and instructional methodology, no librarian can assume he or she understands the users’ needs and expectations without any assessment exercise. One needs to proactively survey the environment, to keep up with the changes around us, if we aim to provide services relevant to our users. A library should assess the environment at these different levels:

- **User level** – assessing students’ needs in learning, what services they need to complete coursework, projects and to support extra-curriculum activities; assessing teaching needs of faculty and instructors.
- **Institutional level** – gathering information on current pedagogies, keeping abreast of curriculum trend, institutional goals; surveying services currently provided by other campus units so that library services would complement rather than compete with these potential partners.
- **Technological environment** – keeping up with the development of education technology and communication technology, and the ways users are using these technologies.

Assessment of this kind is usually most helpful at the planning stage of an information commons. One example is the use of focus group at Utah State University Library (Fagerheim and Weingart, 2006). However, its usefulness extends beyond the first step. The service planning for an information commons is an iterative process. The library must continue the assessment effort to keep up with the changes in the environment.

**INTERNAL DOMAIN**

Performance measurement has always been a focal point in the discussion of assessment. Assessment in the internal domain is about evaluating the service in terms of:

- Users satisfaction
- Strengths
- Weaknesses
- Limitations
- Effectiveness
Relevancy to users’ needs

Internal assessment produces data to help us make improvement on the services, demonstrate accountability to university administration and funding offices, and to demonstrate service value to users and potential partners.

ASSESSMENT FOR HKUST IC

At HKUST, during the pilot phase of the IC, we collect assessment data via usage figures and a user satisfaction survey.

USAGE DATA

In 2006, librarians at HKUST had little experience managing such service facility. We did not know how users were going to receive it. Usage data therefore became crucial in providing evidence of usage and use pattern.

We collect four sets of usage data monthly: login/logout records, printer server log, software usage tracking and the Help Desk transaction log. These data are analyzed carefully; results are documented in monthly reports submitted to the library administration.

LOGIN/LOGOUT DATA

Each login and logout is captured: the time stamp, computer node, user name and action (login or logout). Figure 1 shows a screenshot of the raw data.

From these data, we can find out the time of each session, the status and affiliation of the users and the time he/she comes in. By observing the data across the months, we identified some consistent use patterns.

User groups

The login figures support our assumption that the biggest group of users is undergraduates. During the semesters, constantly over 80% of the logins are contributed by undergraduates. They are mostly active in semester time; during
semester breaks, the proportion of undergraduate logins dropped to around 50-60% while postgraduates, the second major group, become relatively more dominating.

Traffic

Tracking the login time reveals the traffic at the IC. We chart the number of logins per hour, and observe how the hourly login counts rise and fall over the hours and over the months (Figure 2). On a daily basis, the first peak usually appears around 10 a.m. Users come and go; the area stays hectic during the day until the evening.

At the first month of opening, the IC Help Desk opened at 11:00 a.m. As soon as we saw the traffic pattern, we changed the opening hours to 10:00 a.m. to address the morning peak. This was the first instance of active use of our assessment data.

FIGURE 2: VARIATION OF LOGIN PER HOUR ON A TYPICAL WEEKDAY IN NOVEMBER 2007

Session length

The login count alone cannot tell us how much the facility is being occupied. A user may logout after 1 minute of use while another user may stay for 4 hours after login. We need to use the session time as an indicative evidence to show the occupancy of the facility. Such data is very useful for reporting to university administration and for planning expansion.

The session length is easily estimated by the difference between the login time stamp and the logout time stamp. Figure 3 shows the percentage of occupancy calculated monthly. We can see a rise in usage in the second year of operation. It reached a high mark of over 70% in October 2007.
We encountered a problem when calculating the session length. In the first few months of operation, the usage data calculated did not seem to match what we observed at the IC. After investigation, we found out that some logouts were not captured due to a couple of technical problems. An unpaired login was ignored in the compilation of session length; the occupancy rate was hence considerably affected. There were different causes of such missing logouts. We addressed some but the situation could not be eliminated completely. The occupancy rate remains as slightly underestimated.

Another situation with using the occupancy rate to reflect the usage is that the calculated rate is an overall figure. It averages the usage of all the opening hours, including early morning and late evening. Although the IC seems to be full most of the day, the occupancy rate rarely reaches 80% because the relatively low usage at quiet hours diluted the figure. To complement the usage picture, we look at sample snapshots. Two days every month, on the 4th and the 20th, we capture the usage at every hour. This helps us look at the usage level from the users’ point of view. As one can see from Table 1, on October 4 or November 20, 2007, it should have been quite hard for users to find a vacant station from 11 a.m. to 7 p.m. The snapshot data strongly indicates the need to increase the number of workstations.

**TABLE 1: SAMPLE DAYS SHOWING OCCUPANCY**

<table>
<thead>
<tr>
<th>Time</th>
<th>Apr 20 (Fri)</th>
<th>May 20 (Sun)</th>
<th>Sept 4 (Tue)</th>
<th>Oct 4 (Thu)</th>
<th>Oct 20 (Sat)</th>
<th>Nov 20 (Tue)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 am</td>
<td>2%</td>
<td>4%</td>
<td>6%</td>
<td>6%</td>
<td>6%</td>
<td>6%</td>
</tr>
<tr>
<td>9 am</td>
<td>27%</td>
<td>31%</td>
<td>57%</td>
<td>6%</td>
<td>6%</td>
<td>39%</td>
</tr>
<tr>
<td>10 am</td>
<td>67%</td>
<td>96%</td>
<td>94%</td>
<td>39%</td>
<td>84%</td>
<td></td>
</tr>
<tr>
<td>11 am</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>47%</td>
<td>98%</td>
<td></td>
</tr>
<tr>
<td>12 am</td>
<td>100%</td>
<td>98%</td>
<td>100%</td>
<td>88%</td>
<td>98%</td>
<td></td>
</tr>
<tr>
<td>1 pm</td>
<td>100%</td>
<td>35%</td>
<td>100%</td>
<td>86%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>2 pm</td>
<td>98%</td>
<td>88%</td>
<td>100%</td>
<td>94%</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>
SOFTWARE TRACKING

To see whether they are using the IC for academic or recreational purpose, and to understand the usage of software, we acquired the application Track4Win. The figures help us evaluate the usefulness and popularity of individual application, and also tell us how well the IC is supporting students learning. As expected, besides Web browsers, word processing and presentation software stay as the most heavily used applications. With these figures, we infer with confidence that the students are primarily engaged in academic work at the IC.

HELP DESK TRANSACTION LOG

At the opening of the IC, we knew very little about how popular the IC Help Desk would be, and what kinds of questions users would ask there. Therefore, staff at the Help Desk was instructed to record every transaction while they were on duty. The Library modified an open-source software, LibStats, to register reference counter transactions. Naturally, IC Help Desk employed the same platform to record questions and answers. This proved to be very useful in providing both qualitative and quantitative information about the help desk service.

As the users are getting familiar with the service, we can see a trend of more students seeking technical help on increasingly complex questions. Apparently, it took about a year for users to get comfortable seeking help beyond general enquiry. Table 2 shows the changes of the types of questions handled at the IC Help Desk. In November 2006, the third month of operation, most transactions were about general enquiry and printing; software questions only accounted for 9%. In November 2007, while general enquiry dropped, software questions rose; a new category was also added to account for assistance to setting up wireless access for users’ laptops. The trend continues into 2008. By looking at the transaction details, we observe that the questions are getting more and more diversified and sophisticated.

TABLE 2: QUESTION TYPES AT THE HELP DESK

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</thead>
<tbody>
<tr>
<td>General Enquiry</td>
<td>40%</td>
<td>17%</td>
<td>21%</td>
<td>11%</td>
</tr>
<tr>
<td>Printing</td>
<td>35%</td>
<td>55%</td>
<td>37%</td>
<td>39%</td>
</tr>
<tr>
<td>Software</td>
<td>9%</td>
<td>11%</td>
<td>13%</td>
<td>15%</td>
</tr>
<tr>
<td>-----------</td>
<td>----</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>Hardware</td>
<td>5%</td>
<td>2%</td>
<td>8%</td>
<td>7%</td>
</tr>
<tr>
<td>Scanning</td>
<td>6%</td>
<td>8%</td>
<td>6%</td>
<td>7%</td>
</tr>
<tr>
<td>Wireless Connection</td>
<td>--</td>
<td>--</td>
<td>10%</td>
<td>11%</td>
</tr>
<tr>
<td>Other categories</td>
<td>5%</td>
<td>7%</td>
<td>5%</td>
<td>10%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
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</table>

**USER SATISFACTION SURVEY**

The usage figures collected monthly tell us the number of logins and the software applications launched. They provide a fairly good glimpse of the overall usage picture, but cannot show the needs, behaviors, and satisfaction level of individual users.

In February 2007, the Library Director formed the IC Assessment Group to plan and conduct an assessment exercise to evaluate the service. The Group decided that the assessment should focus on user satisfaction; it chose to use a questionnaire survey that targeted at the IC users. The Group then designed the questionnaire and planned the logistics of the survey, to be conducted two months later. The choice of time was to give users some time to get familiar with the service so that fair and meaningful comments could be collected.

The survey aimed to answer the following questions:

- What are the usage patterns like?
- What do users do at the IC and what for?
- Are current facilities adequate?
- Are our users satisfied?
- What do they like about the IC and where do we need improvement?

**METHODOLOGY**

The survey was composed of a brief and anonymous online questionnaire of 9 questions (Appendix). Invitation was emailed to all students and staff. We promoted the survey at the Library website and by distributing bookmarks at all service points.

As a token of appreciation and an incentive to users filling out the questionnaire, we prepared a lucky draw with prized of 20 USB flash drives.

**FINDINGS**

We received over 300 valid responses. We estimated that the survey captured roughly 9-10% of the users that have ever used the IC. Most respondents were students (undergraduates - 69%, postgraduates - 18%).
The survey findings indicate that:

- The satisfaction level to the IC is generally good. The overall satisfaction score was 3.62 at a scale of 1 (lowest) to 5 (highest), with the mode at "4" (53% of respondents)
- The IC successfully attracted a group of frequent and loyal users. Most users in this group are undergraduates. They use the IC at least a few times a week; they are generally more satisfied with the service and use the IC for a wider range of purposes. They also gave more comments in the survey. Evidently the IC has become an important component in their learning.
- Undergraduate have stronger need for group space; they come mostly for information search and assignments
- Most postgraduates come less than once a week; they use the Reference Counter and the Help Desk; their main purpose of use is research work.
- Staff members usually come less than once a week; they use a wider variety of facility and service, for a wider range of purposes.

The survey helped the Library to identify strengths and weaknesses of the IC:

What users like about the IC

- pleasant environment
- good selection of software
- proximity to reference collection
- assistance readily available

What are inadequate or need the Library's attention

- sometimes too crowded
- difficult to find vacant stations
- insufficient group space
- users are unaware of resources available
- use regulations may need to be strengthened to maximize the use of existing resources

IMMEDIATE ACTIONS

After reviewing the feedback collected, we promptly identified those suggestions that were reasonable and easy to implement. A few improvements were made immediately or in the few months that followed. These include better signage, clearer instructions for users, software upgrade, additional printer and other service fine-tuning.
INDICATION FOR FUTURE DEVELOPMENT

From the survey results, we identified a number of priorities and considerations for the next phase of service development. They are:

- Increase in number of computers and space
- Create more collaborative space while balancing the interest of those single users who need quiet space
- Implement use policy or reservation system that help regulate use of different facilities
- Introduce user instruction program at the IC
- Enrich the integrated services by explore partnership with other university units

EXPANSION PLAN

In November 2007, the Library formed a task force for the planning of the expansion of the IC, which is known among us as the IC2 project. The IC2 serves as an interim phase that builds a solid foundation for the planning and managing of the new learning spaces in the 2012 Library expansion.

The five guiding principles of an information commons 2.0 are “open, free, comfortable, inspiring and practical” (Sinclair, 2007). Ambience and space design is no longer secondary to the amount of hardware. Although the expansion plan will definitely provide more workstations, a major focus of the IC2 would be flexibility and the provision of space that encourage collaboration and creativity.

Among many new facilities at the IC2, users will find:

- Comfortable soft seats friendly for laptop use
- An integrated help counter for information and technical assistance
- Presentation rooms that support laptops
- Teaching venue with flexible configuration
- More stations for group work, with different configuration, for various group sizes
- More computer stations for individuals
- Strong multimedia support

At the time of writing, the Library has submitted the budgetary proposal for the IC2 to the university administration. The proposal covers the facility and staff cost. To implement the IC2 successfully, the funding support is only the first step. The plan carries a number of implications and challenges for the Library and its staff. A major feature in the plan is an integrated service desk that is supposed to be staffed by cross-trained personnel, who can handle both technical and non-technical enquiries. The Library would have to handle the issue of staff training and redeployment. To maximize the value of the IC2, the Library would explore ideas for new service
program and investigate partnership program with other academic support units in the university.

FUTURE ASSESSMENT

Assessment is an ongoing effort. The HKUST Library will continue to record usage figures at the IC. Even use patterns that stay the same every month is telling us something, which is that users have established a stable and consistent use behaviors. Knowledge of such users behaviors help us make informed and effective service plan.

We would strengthen our assessment program to cover the external domain. We seek to understand the needs and priorities of our users. One way is to conduct formal exercise like surveys, interviews and focus groups. In fact, informal channel such as close working relationship with faculty and academic units would be very useful to help the Library assess the service environment.

CONCLUSION

Assessment is important to any implementation of information commons. It is particularly crucial for the HKUST IC. This new service needs to establish itself as valuable and effective in teaching and learning support; librarians at HKUST need to gain experience in managing and operating such service to meet coming changes in institutional environment, in particular to plan the new learning space at the 2012 expansion.

In its pilot phase, the assessment of the IC consisted of continuous monitor of usage data and a user satisfaction survey eight months after the service launching. The assessment data was translated into a good amount of knowledge on users’ needs and behaviors. Such knowledge helped the Library to refine the IC on both facility and service front; it also gave us the confidence in making a sound proposal for the IC2.

The HKUST is currently at the juncture of seeking support for the expansion of the Information Commons. No matter what scale the service facility is going to be, a robust assessment program will always be the key to success.

REFERENCE


APPENDIX: SURVEY QUESTIONNAIRE

1. How often do you use the Information Commons (IC)?
   - Almost every day
   - A few times a week
   - Once a week
   - Less than once a week
   - Only once / This is my first visit

2. How long is your average visit?
   - Less than an hour
   - 1 to 2 hours
   - 2 to 4 hours
   - More than 4 hours

3. How often do you need to wait for a vacant station?
   - Often
   - Once in a while
   - Never

4. When you use the IC, have you ever worked in a group?
   - Never
   - Occasionally
   - Often
   - Always

5. Mark all the services or facilities that you have ever used at IC:
   - Printing
   - Scanning
   - Collaboration Rooms
   - Seminar and Presentation Rooms (LG1/LG3)
   - IC Help Desk
   - Reference Counter
   - Other - please specify:

6. What is your usual purpose for using the IC? You may choose more than one:
☐ Work on research project
☐ Practice class presentation
☐ Other class assignment
☐ Search for information
☐ Extra-curricular activities (such as student societies work)
☐ Other - please specify:

7. Please rate your satisfaction with IC - 1:lowest, 5:highest:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assistance at the IC Help Desk</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Selection of software</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Availability of group space</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Environment (e.g. equipment, furniture, etc.)</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Overall satisfaction</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

8. Please give us your comments or suggestions for improvement.

*9. What is your status at HKUST?
☐ UG - School/Department:
☐ PG - School/Department:
☐ Staff - School/Department:
☐ Faculty - School/Department:
☐ Other - please specify: