Monitoring eLearning environments through analysing web logs of institution-wide eLearning platforms

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Monitoring the use of web technology in teaching and learning activities at an institutional level can provide universities with valuable data to guide policy decision-making for eLearning support services. Like many other universities, The Chinese University of Hong Kong has centralized support to teachers and students through the provision of eLearning platforms, and training and educational advice on eLearning strategies. The paper examines how the logs kept in the centralized platforms support the University in monitoring eLearning at an institutional level. The logs provide information on three common areas of interest concerning web use: its popularity, nature of use and the engagement of the participants. The paper also illustrates, with data from the University, the analysis and reporting that can be done with the logs to enrich our understanding of the University's eLearning in these three areas.

Keywords: eLearning, institutional level, monitoring, platforms, logs, staff development

Tracking eLearning at an institutional level

Institution-level policy relating to eLearning is essential in promoting meaningful use of web-enhanced teaching and learning. There have been some studies at programme level, university level or involving several universities conducted with the aim of maximizing the potential benefits of web-enhanced teaching and learning. Two studies in New Zealand and one in Australia are noted below. In a recent (2004) study of a single university in New Zealand, Northover (2005) examined the perspectives of administrators, teachers and students. For all three groups (albeit in different words and with different nuances), the success of the eLearning system depended upon whether these three factors were met (in no particular order): (i) expectations about flexibility and technical access; (ii) the quality of the learning experience; and (iii) processes for managing work and other aspects of life. Marshall (2005) reported on overall eLearning capabilities using data from six universities and three polytechnics in New Zealand. He revealed institutional weaknesses in the areas of performance in learning, development, coordination and evaluation aspects of eLearning. For example, the eLearning development did not match the desired educational outcomes; evaluation processes were also lacking. McNaught, Phillips, Rossiter and Winn (2000), in an Australia-wide study involving 25 universities in all states of Australia, found that the issues surrounding the adoption of eLearning at universities are complex, and no single factor will result in adoption. They identified an interlocking set of factors relating to issues in institutional culture, policy and support. These studies all reveal the complex and multifaceted nature of eLearning policy and support, and establish the need for information, coordination and consultation when developing policy.

The work in this paper is a consequence of a study conducted in 2004 at The Chinese University of Hong Kong (CUHK) (McNaught, Lam, Keing, & Cheng, 2006) aimed at obtaining a clear picture about the use of eLearning in the University so as to develop new strategic directions on a firm evidence base. CUHK is a comprehensive, research-intensive university with seven faculties serving 10 000 undergraduate and 9 000 postgraduate students. The study was successful in obtaining significant funding for the provision of an enlarged eLearning support service. One of the reasons for this paper is to offer this evidence-based approach to other universities as a possible persuasive strategy.

A university-wide investigation of eLearning activities is difficult as there is a great variety of eLearning activities occurring in any university, involving a range of strategies, and diversity in arrangements for hosting materials and systems. A full understanding of an eLearning situation requires measurements across many aspects. Frydenberg (2002) described standards in nine domains which can determine the quality of eLearning in an institution. They are:

1 Executive commitment
2 Technological infrastructure
3 Student services
4 *Design and development*
5 Instruction and instructor services
6 *Programme delivery*
7 Financial health
8 Legal and regulatory requirements
9 Program evaluation

Frydenberg focused on considerations for distance education settings, but there are similar concerns in all universities that are seriously utilizing technology to supplement face-to-face teaching. Among these nine aspects, we would argue that the standards in *design and development*, and *programme delivery* are universally important as they are directly related to the nature of the online activities students are engaged in, and hence also to the level of engagement they have in the activities. A key element of good design and delivery involves the concept of interactivity – how students interact with learning materials, with the teacher and with peer learners (Swan, 2003). Online interactivity involves interactions with either the content which might be text, audio visual resources, graphics and static visual representations, scenarios, simulations, and/or quizzes, or with people via asynchronous online communication (threaded discussions/ newsgroups) and/or synchronous communication (chat) (Kearsley, 2000). Interactivity is thought to enhance learning as feedback and reflections effectively help the construction of meaning and give structure to knowledge and information (O'Connor, 1998; Taylor & Maor, 2000). Other writers have emphasized the interactions among the peers in the form of learning communities. Both Laurillard (2002) and Wenger (1998) discussed how 'communities of practice' can emerge through the use of web technology. In these communities learners can pursue shared enterprises through discussion and collaboration in a highly active form of learning.

In line with this constructivist view of eLearning designs, evidence of rich teaching and learning resources, and meaningful interactions (both teacher–student and student–student) between computer users are effective indicators of good online development and programme delivery.

Logs as sustainable and non-intrusive evaluation data

Evidence about the richness of online resources and the nature of online interactions can be collected through various means. For example, Brown, Doughty, Draper, Henderson, and McAteer (1996) measured students' engagement in various online activities in multiple courses using students' self-reflections. However, this data is costly to gather in terms of time. This paper proposes a strategy by which logs of eLearning activities in centralized university units provide a relatively easy method for the evaluation of the richness of eLearning resources and interactions. The logs should be understood in a "general way" as any kind of information "saved into a file or only kept in a memory while an application is used" and the information can be about usage, user activities, problem situations, and user-related metadata (Rahkila & Karjalainen, 1999). Rahkila and Karjalainen argued that logs are useful tools for teachers to use at a course level to understand student learning. Silva and Vieira (2002) went further and suggested that logs can serve as a basis for ongoing assessment of students. We suggest that logs are of value at an institutional level. Effective record-keeping, and extraction and interpretation of eLearning logs can reveal valuable information on the standards of design and development, and programme delivery. The logs can reveal information about the magnitude and the nature of the online learning content and the online activities. This strategy is not intended to be a comprehensive solution to all evaluation needs but it is a comparatively easy, automatic, and non-intrusive method to provide relatively quick and accurate data to help answer some questions and concerns. The work is an extension and consolidation of the 2004 study to monitor eLearning in our University (McNaught et al., 2006).

The logs kept by the common learning management systems are not immediately useful for this level of use because "the visualisation of data is insufficient or absent" and "these data are usually oriented toward the instructor's view" (Solodovņikova & Niedrīte, 2005, p. 234). Solodovņikova and Niedrīte described the mechanism needed to extract and mine log data in WebCT. The focus of the present paper, however, is not the same. We are not concerned with the technical aspects of data mining, but are interested in educational questions such as: What data types are actually available through the logs and what information can this data provide to further our understanding of eLearning activities?

In universities with centralized web-based teaching and learning systems, monitoring the logs can be accomplished because most eLearning platforms have in-built mechanisms to track and record a certain amount of information about online activities occurring within the systems. This is the situation at CUHK. The Information Technology Services Centre (ITSC) is responsible for maintaining the eLearning platforms for teaching staff in the University. The Centre also provides consultation and training for teachers to familiarize them with the functionality of the platforms and support the development of simple eLearning materials. Two main platforms are supported at CUHK. These are WebCT and a home-grown platform, CUForum (see http://www.cuhk.edu.hk/elearning). The main difference between WebCT and CUForum is that CUForum does not support online quizzes. There is support provided for other web-based teaching, including a real-time virtual classroom (iClass) and on-demand lectures. Moodle is now supported as a new initiative. However at this time, the majority of CUHK teachers who use ITSC's services use WebCT or CUForum.

The Centre for Learning Enhancement and Research (CLEAR) is also responsible for supporting pedagogical aspects of eLearning. Teachers receive advice on how to choose and implement appropriate eLearning strategies for the specific teaching and learning needs of different courses.

At CUHK the majority of the eLearning activities are supported by the central services. Apart from one faculty (Engineering) there are few non-centrally-hosted course websites. For this reason our monitoring model concentrates on the learning activities that are recorded in the centralized platforms only.

System logs recorded in centralized eLearning platforms can provide data on the popularity, the nature of the functions/ strategies in use, and engagement of teachers and students. Extraction of system logs is also completely non-intrusive to both teachers and students. The 2004 study provided us with good experience in extracting and interpreting logs. The experience led to rethinking our processes into a more organized framework. Once the software for log extraction and analysis is in place, the examination of log data can be administered on a regular basis (e.g. annually). In the long run, the monitoring mechanism can produce an eLearning report each year, and also enable trends in different areas of eLearning use to be examined over time.

One limitation of this approach is that it monitors only uses of the web that utilize the central system. Also, it has a bias on quantity rather than quality as logs focus on numbers rather than providing a full picture of the educational quality of the course websites. The exact activities that are ongoing are not transparent in a log mechanism for two reasons. Firstly, staff in central units have no rights to access the content and messages on course websites without proper authorization. Further, not all online activities and the engagement of these activities can be effectively recorded by the logs. For example, the availability of course outlines on course websites is an online activity that is of great interest to our University. However, having an online course outline is not an activity separately recorded by the logs of either WebCT or CUForum. It is impossible to identify unless researchers go into the individual websites and read all the documents there because course outlines can be any of the uploaded files. Also, the idea of tracking the engagement of teaching assistants in forum discussions is not practical in the CUForum platform as teaching assistants are not assigned special roles in the system at present. The picture portrayed by the logs can only be a partial representation of the total learning activities, and the engagement teachers and students have with these activities.

Secondly, a detailed study of quality is too time-consuming for a largely automatic and regular eLearning monitoring mechanism. There is a tension between practicality and maximum usefulness that we needed to negotiate, and we have sought a good balance point. Of course, issues of quality and usefulness are

vital. The data provided by the log system complements a number of other projects at CUHK which are designed to provide feedback to individual departments and course teachers.

The monitoring mechanism was also restricted by technical limitations. The eLearning platforms do not normally provide institutional level data; they are mainly intended for individual teachers to monitor their students but not for the institution to monitor all courses at the same time. Our two eLearning platforms were WebCT version 3.8 and CUForum. WebCT does not supply detailed documentation on database structure and definitions, making the locations where log records are stored in the system difficult to access outside of the in-built logs display. As a result, much time and effort were spent on: (i) testing where to allocate the intended information through trial and error; (ii) checking whether the data are accurate; and (iii) developing software to enable automatic extraction of the information on all courses in the University. Six months were spent on this aspect of our work.

Since the other main eLearning platform of the university, CUForum, is a home-grown platform, the places where activities records are stored in system are more transparent. However, we still met challenges such the fact that these figures were originally intended to assist individual teachers only and not for reporting university-wide uses. Minor changes had to be made to extract the appropriate logs from the system and do the respective calculations. One month was spent on this process.

The questions logs can answer

Logs can provide three types of information to support our understanding of eLearning uses:

1 The notion of **popularity**. We define this as a general notion concerning whether any forms of eLearning activities exist in a course. This is a very simple yes/no specification to each course in the University, whether any sorts of eLearning activities are recorded in our logs or not.
2 The **nature** of the eLearning activities recorded for each web-enabled course. For example, this means whether there are forums, assignment submission service, course content delivery function, online quizzes or surveys, and grade book facility, etc.
3 The **engagement** notion which reflects how involved teachers and/or students are in these activities. This is the level among the three that conveys the finest amount of detail about a site. After the recognition that there is a course website (popularity), more information can reveal the actual features and activities having occurred on the site (nature). After learning about the nature of the website, yet more information can be collected to see to what extent the teachers and students have been engaged in the various types of activities (engagement).

Even if the logs are available to reveal certain aspects of popularity, nature and engagement of the websites, care has still to be taken to understand the exact meanings of these logs based on the characteristics of the platforms and how logs are kept in them. Very often, minor adjustments have to be made or there are decisions to make concerning the cut-off points beyond which the records are deemed to fall into another category.

Details of the log data collected

Different types of site log data were collected for the current study. All of them were obtained by additional programming by ITSC.

Popularity: Whether the platforms are used

The existence of an online component for courses that use WebCT is comparatively easier to determine than those using CUForum in our case. WebCT users have to register for their WebCT courses at the beginning of every new academic year. Existence of WebCT courses is defined as all the registered courses in the period under study (e.g. academic year 2005–06). The situation in CUForum is comparatively more complicated because all opened forums are automatically carried on to the next term without the need to re-register. The definition of a site that exists in CUForum in a particular academic year is therefore defined as an ‘active’ site which has at least ONE access during a pre-determined period of time (usually from the beginning to the end of the studied academic year).

Another interesting decision concerning the notion of popularity concerns the size of a class. Past experience has informed us that class size is a major factor affecting teachers' willingness to use an online component. In general, teachers have less motivation to use the web when the class is small (say fewer than 10 students). The decision we have is to extract, as part of the data, the number of active students in each course (all students in the course minus the 'denied access' ones in WebCT).

Nature: The functions and strategies being used

Two main types of system records inform us about the types of learning activities that are likely to be ongoing in the eLearning platforms. The first type is about the web functions that are opened or are in use by the teachers, and the second type concerns checking the file-types that are associated with the websites (Table 1).

Table 1: Data available from logs about the nature of use

	WebCT		CUForum	
Functions	• Forum (discussion) • Assignment submission	• Content delivery • Quizzes / survey • Grade book • Chatroom	• Message (discussion) • Homework (Assignment submission)	• File • Links • Photos
File types (and number of files)	• doc • pdf • xls • ppt • swf	• htm/ html • Media files such as ram, rm, wma, wmv, mp3, mpeg, avi	• doc • pdf • xls • ppt • swf	• htm/ .html • Media files such as ram, rm, wma, wmv, mp3, mpeg, avi

When the web functions present on websites are recorded, there are a number of factors to consider. First, there is no need to check every function. For example, the email and the calendar functions in the WebCT platform may not be worth checking. Students and teachers are likely to use other email systems and other means to display course calendars, such as an uploaded plain Word document. It is therefore difficult to judge the presence or absence of such activities based on logs alone. This in turn makes the pedagogical value of such data minimal.

Some functions are set to be default components on websites. For example, all functions in CUForum already exist by default and so whether the functions are actually used or not cannot be decided by the simple existence of such features. Checking of basic WebCT functions such as forums and quiz also requires additional attention. Default functions that recorded zero usage are not included as valid active components; however, this rule requires some additional consideration. Consider the quiz function in WebCT as an example. There is a default quiz (called 'sample quiz') upon a site's initiation; a teacher can delete this before building her/his own quiz, making the internal counter for the total number of quizzes present on the website to remain as 'one'. So, the number of quizzes on a website in itself is not an accurate indicator of the function in use. While a record of only one quiz on the website in most cases means the function is inactive because it is the 'sample quiz', in some cases it may mean the website has a teacher-written quiz with the sample quiz deleted. A more complicated logic has to be used. The name of quiz can be added to the consideration: Do not count quiz with name 'sample quiz'.

Functions in WebCT that are monitored in the mechanism include the 'forum', 'assignment submission', 'content delivery', 'quizzes/ survey' and 'grade book'. CUForum does not support online quizzes, but rather it has separate folders for users to put up interesting links and images respectively. The functions that are of interest in the monitoring mechanism are 'message', 'homework', 'file', 'links' and 'photos'.

A record of file-types uploaded to WebCT and CUForum can be extracted. Through our tailor-made extraction and logs analysis program, the files in the record can be further classified into file-types: e.g. doc, pdf, xls, ppt, swf, htm/ html, and media files such as ram, rm, wma, wmv, mp3, mpeg and avi. A decision has to be taken as to whether to read all files stored on the sites, only the files released to students, or even only those files that have been viewed by students. The information about what files are on the site is another source of information, which indirectly and roughly indicates some characteristics of the sites: e.g. content-rich or media-rich.

Engagement: Involvement of teachers and students in the activities

Many types of logs inform us of the level of engagement of teachers and/or students in the online activities. As shown on Table 2, such information comes from the records of the traffic incurred in the whole platform, the visits paid to individual sites through counters on the first page, the record of attempts by students in quizzes, the logs on reading and writing postings in forums, and the frequency of files being viewed and downloaded. We did not define traffic as the volume of information (in bytes) going in and out the systems as it is greatly influenced by the size of the files and whether a multimedia format has been used. The tracking is based on the frequency of access by students and by teachers to the platforms in general. There is a time stamp for each record so that analyses of the traffic by month, by week, by day of week, and by hours are all possible.

Table 2: Data available from logs about engagement

	WebCT		**CUForum**	
Traffic	• Frequency	• By week/ month	No data	
Visits	• Counter on first page		• By students (% of non-users)	
Quizzes	*Single-attempt quizzes* • No. of exercises • No. of questions • % of students attempted • No. of quizzes with feedback	*Multiple-attempt quizzes* • No. of exercises • No. of questions • % of students attempted • No. of attempts per students • No. of quizzes with feedback	Not applicable	
Forum	• No. of posts • Post (written and read) per student	• Range of postings (written and read) by students	• Posts by teachers • No. of threads	• Thread length
File viewing	• Viewing	• Downloading	• Viewing	• Downloading

There are internal counter systems in both WebCT and CUForum which basically record visits paid to the first pages of individual websites. The main disadvantage of these counters is that they do not record teacher activities since the original purpose of them is to assist teachers in tracking students. The extraction and monitoring program added to the WebCT and CUForum systems reads all raw data concerning the visits paid by individual students to sort out the average visit per student, and also the range of the frequency of visits. The analysis can also highlight the number of 'students who never logged in' in the whole student population when we look across records of visits across all sites. It is a useful piece of information. However, we need to be careful as some of these students may be students who had been denied access (a possibility in WebCT) perhaps because they have dropped the course.

There are two main types of quizzes. In the first type students are allowed to make one attempt. This is more likely to function as formal assessment in the course. The second type permits students to make multiple attempts and allow students to learn through their errors. Such quizzes may be self-assessment exercises for students with marks not contributing to course grades. In both types, the percentage of students who have taken the quizzes can be calculated. In the multiple-attempts-allowed quizzes alone, the average number of attempts made by students can be calculated by either dividing the total attempts recorded on all quizzes by the total number of students in class, or by dividing the total attempts on quizzes by the number of students who have taken any quizzes. The logs can also reveal the number of quizzes that have pre-installed feedback.

Both the forums in WebCT and CUForum arrange the postings in threads. Logs can be extracted to reveal the number of the total postings on the forums, the average number of postings written per student, the number of postings read by students, the range of the number of postings written by different students, the number of postings by teachers, the number of threads, and the average thread length.

Lastly, the frequency of students' viewing of uploaded content on the websites also reveals how students have been engaged in the online activities. Checking the 'visits of files' is easy in CUForum. There is already a function that records the usage of the files by individual students. The original purpose of the function is to allow teachers to monitor their classes. The information can be collected for all classes in

our monitoring mechanism. The 'visits of files' data in WebCT are comparatively difficult to collect. First of all, the system does not count visits on all the files; it only checks those files stored under the 'course content' page. If the files are attachments in forum postings, for example, the system will have no records of them. Secondly, it is more difficult to find the information from these counters in the system as the system does not provide clear information on the database structure for data. We have to acknowledge these limitations when we read the WebCT data.

Reporting

The data from the logs enable, but are not restricted only to, the following types of data comparison and representations. Concerning the question about popularity (whether eLearning is used in the university), we can look at the overall usage of the platforms. For example, the trend of the overall websites built on the WebCT and the CUForum platforms can be calculated and contrasted across the years. Figure 1 illustrates the trend in the operating figures of WebCT and CUForum at CUHK using data from 2000–06.

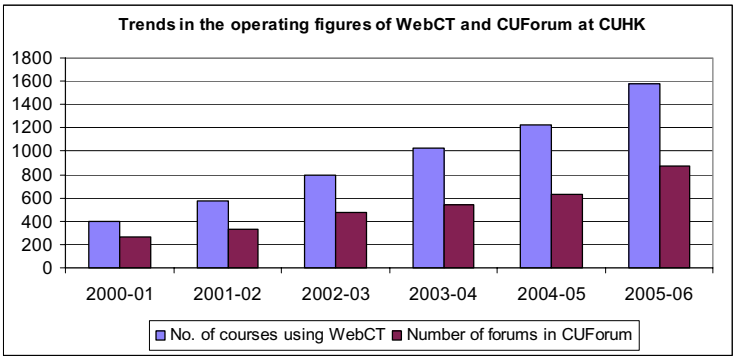

Figure 1: Trends in the operating figures of WebCT and CUForum at CUHK

The popularity of courses that have a web component in either WebCT or CUForum can also be calculated for each of the faculties or departments in the University. Faculties and departments vary a great deal in their eLearning environment. For example, on the one hand, there are eLearning-intensive faculties in which more than 95% of courses have an eLearning component. On the other hand, there are faculties in which teachers less regularly engage their students in online activities; web-enabled courses reach as low as 20% of the total number of courses.

Concerning the second question about the nature of the online activities on the sites, logs concerning the features and functions used can be compared and contrasted. Figure 2 illustrates with data for 2005–06 the various levels of employment of the following functions in WebCT: the quiz, assignment submission and discussion functions.

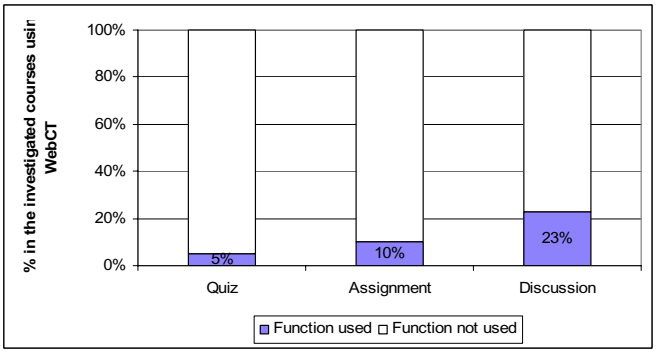

Figure 2: Web functions in the websites hosted in WebCT (2005–06)

The individual functions can be analysed individually. For example, Figure 3 illustrates some details about how the quiz function is used in WebCT using also the 2005–06 data. Recalling that most of the websites do not have any quizzes (95% from the readings on Figure 2), teachers who use the quiz functions, can use the function quite intensively. There are cases where there are more than 10 and even more than 20 quizzes.

Lastly, concerning the question about whether students are engaged in eLearning tasks, logs about student activities can be studied closely. Figure 4 illustrates one way to analyse the level of engagement of students in discussion forums. Higher level of engagement is revealed by the average number of postings made by students in WebCT forums. The 2005–06 data show that most students either have not participated at all or have posted only one to three messages in average in each course.

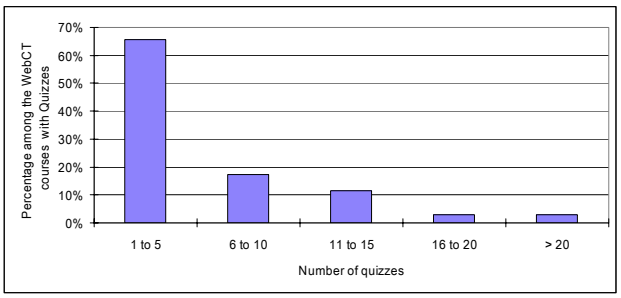

Figure 3: Use of the quiz function in WebCT websites (2005–06)

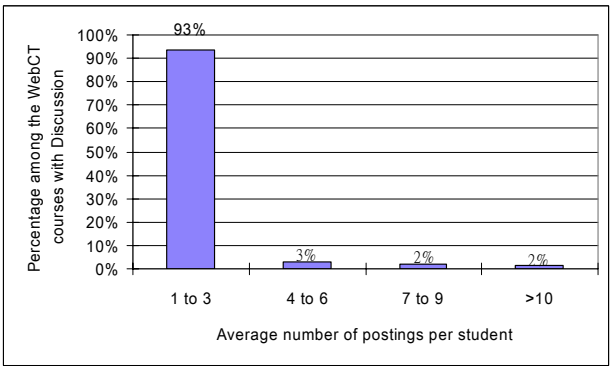

Figure 4: Average number of postings made by students in WebCT forums (2005–06)

Other possibilities of analyses and reporting on this level include investigation of the eLearning readiness of students by looking at students' visits to each course website over the year, the engagement of students in other functions of the websites, e.g. quizzes and content-viewing, the engagement of teachers in viewing the sites, and participating in forums. The information of engagement in eLearning can also be contrasted between the different faculties, departments and programmes. The information can also show a trend if the data are recorded over time.

Interpretation

The processed data can lead us to a better understanding of the eLearning from at least three different angles. First of all, the data provides an overview of the use made of the web within the institution and across different faculties. In the case of CUHK, eLearning is still largely in the 'innovators' and 'early adopters' stages (Rogers, 2003). ELearning is still far from a popular teaching and learning strategy at the University. Also, content provision and discussion are the most widely used functions. Sites seem to be largely 'static' rather than 'interactive' as suggested by the logs that record forum usage and the number of multimedia files on sites. Other features of the eLearning platforms, such as the online quizzes and assignment submission functions, are rarely used.

Secondly, the data make comparison across disciplines possible. In the case of CUHK, for example, the use of eLearning across faculties varies a great deal (from nearly all courses to about 20% of courses). We do need to be careful in reading these numbers. In the Faculty of Engineering, for example, even though ITSC-hosted platforms are not widely used for eLearning activities, teachers are engaged in extensive use of the web in teaching using their own servers. Follow-up communications with selected members in this faculty confirmed that they found setting up online learning resources and activities by doing their own programming is in fact more time-efficient and flexible than using the eLearning platforms intended for teachers with limited computer literacy. Teachers in this faculty are more able computer users.

Knowing the faculty characteristics of engagement in eLearning is important for more focused planning for eLearning support and promotional strategies. For example, we have decided to concentrate on the more sophisticated functions of the platforms when we approach the Faculty of Medicine as the content delivery and forum functions are already commonly used. On the contrary, the basic functions will be the main focus when we approach the faculties that are less ready. We also see the necessity of motivating the teachers in faculties with low usage to use the technology. In this case we will concentrate on how the technology can provide convenience and better information (what we call level 1 in our eLearning guidelines; see http://www.cuhk.edu.hk/eLearning/doc/eL_Guidelines_6Mar06.pdf) and hence perhaps support student learning. However, in the Faculty of Engineering, the focus will be on pedagogy rather than on technology. They will be given illustrations that illustrate the great variety of online learning activities and designs that may lead to improved learning and teaching.

The third angle of interpretation the data supports is the monitoring of progress over time. The repeated measures of the same eLearning activities over the years should portray a dynamic picture that highlights changes and trends in eLearning. It is more valid and more positive to depend on the information collected over the years to acknowledge disciplines' effort in making progress in a direction that suits their purposes. For example, the progress of the less ready faculties will be to a large extent reflected by the number of newcomers to the eLearning platforms over the years. The progress of the others, however, will be more focused on the enhancements on their eLearning strategies and designs.

The information on the current web uses, and the trends and changes of web activities over the years, undoubtedly directs the focuses of the eLearning support provided by the institution. In CUHK, the monitoring mechanism was germane to the design of the University's new eLearning Service (eLS@CU). eLS@CU was based on the findings of the extensive evaluation study in 2004 of course websites in all seven faculties at CUHK. The objectives are to provide focused professional development for teachers about the strengths, weaknesses, potential, and strategies for eLearning; and support for individual teachers and course teams, in both educational and technical matters on individual course websites. Each of the CUHK's 54 undergraduate programmes has been approached. Over a period of two years (2005–06 and 2006–07) a plan will be produced for each one about how best to support enhancement of eLearning within all, or a targeted selection of, courses.

Conclusion

Using the case of CUHK, the paper has outlined how logs can be exploited systematically to reveal valuable information about eLearning at the institutional level to inform decision-making about policy matters, including funding for eLearning support services. Now that it is in place, the monitoring mechanism provides a non-intrusive and labour-friendly strategy to record information about web-based teaching and learning activities by collecting and analysing the logs recorded in the centrally supported eLearning platforms. The logs can provide information on three common areas of interest concerning web use: its popularity, nature of use and the engagement of the participants. The paper also illustrates, with real data from the University, the sorts of analysis and reporting that can be done with the logs to enrich our understanding of the University's eLearning. Possible outcomes of such analyses include better understanding of the current uses which in turn can inform new plans and decisions on future eLearning support. The paper also emphasizes the limitations of the mechanism – its measures are based more on quantity than quality; and needs to be supplemented by other detailed (and often qualitative) eLearning studies on the usefulness of various web strategies.

The monitoring mechanism portrayed is not necessarily based on any particular eLearning platform. The framework about the basic approach can generally be answered by logs recorded in most eLearning platforms. The study shows one application of the framework by illustrating what types of logs can be extracted from WebCT and CUForum. However, a similar extraction, analysis and interpretation of logs is equally possible in other platforms as long as there are ready-made functions in these platforms to record activities, or the platforms easily allow add-ons to track activities. It is hoped that this paper will be of interest to other universities where detailed institution-level tracking has not yet been established.

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