

Peer learning, lectures and online learning

Putting it all together

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INTRODUCTION

This paper evaluates usage of discussion forums forming part of an integrated online learning environment that supplements a face to face general practice registrar training program.

METHOD

Basic general practice registrars were given training in the use of the online learning environment, which was explicitly linked to their other educational activities. A group of advanced registrars was given access to the online environment without any formal training or support and without specific curriculum linkage. Usage data were in the form of quantitative analysis of site logs, posts to discussion forums before and after a website redesign, and qualitative feedback from focus groups.

RESULTS

The majority of basic registrars accessed forums to read messages. Only one third posted messages. The number of registrars to access forums was similar before and after site redesign. Log data indicated greater exploration of resources in the redesigned environment. The group of advanced registrars used the online resources significantly less than the basic registrars.

DISCUSSION

These data underscore the importance of linking curriculum to online learning resources, and of providing adequate information technology training and support.

Widespread mainstream access to the internet over the past 10 years has led to increased use of online learning environments.¹ These online environments complement traditional forms of learning (eg. lectures, face to face tutorials and textbooks) by providing access to supplementary learning resources irrespective of time or location.²⁻⁴ Although institutional infrastructure support for online learning is improving rapidly, the literature highlights a number of barriers to effective uptake of online learning opportunities. These include lack of perceived need for new learning media, competing demands on time, medical educator resistance to change, insufficient levels of information technology (IT) support and training^{5,6} along with concerns about the reliability of medical information discussed in online forums.⁷

The Joint Universities Centre for Education and Training in General Practice (JUCET-GP), a joint venture of the University of Melbourne and Monash University, provides education to general practice registrars enrolled through the Victorian Metropolitan Alliance. General practice registrars participate in a number of learning experiences through JUCET-GP, including peer learning sessions, lectures, teaching visits, GP supervisor teaching, and study groups. For more than 2 years JUCET-GP has also used an online learning platform to align and integrate its learning material. At the beginning of 2004, JUCET-GP expanded online learning support by providing web based facilitated discussion

forums for basic and advanced registrars.

This paper explores the role of these online discussion forums in encouraging use of online learning resources.

The JUCET-GP website serves registrars as provider of announcements, meeting dates, forthcoming workshop timetables, links, training information and an online integrated education program via authenticated access. This education program includes a monthly case forum, exam folder, Aboriginal health section, and presentations used in workshops and lectures. Monthly case forums allow registrars to post messages on specific case scenarios based on material covered in their release workshops and weekend lecture series. Integral to the website is curriculum mapping of educational content and delivery across all training terms.

Methods

Participants

General practice registrars in the 2004 cohort ('study one') were given access to the Topclass Learning Management System (version 6.2, available from WBT Systems at www.wbt systems.com) via a specific username and password. The basic group comprised 25 registrars undertaking their first 6 months of training at the start of 2004, and the advanced group comprised 21 registrars undertaking their second 6 months of training, also at the start of 2004. An introductory workshop was given to the basic group to familiarise them with the

website and how to post messages, whereas the advanced group were offered emailed instructions and assistance from eight medical educators participating as facilitators in the training program.

General practice registrars in the 2005 cohort ('study two') used the Moodle learning management system (LMS) (version 1.4.3, open sources software from www.moodle.org), which offered similar

functionality to Topclass but with a more customisable interface and better integration with learning resources. In addition to the basic (n=36) and advanced groups (n=15) who started their GP terms in 2005, there was also a subsequent term group (n=34) comprising final year registrars. Registrars in the subsequent group were offered the possibility of accessing the forums and resources available to basic and advanced

Groups, but did not have specific forums of their own. There were 15 medical educators in 2005.

Online discussion forum

Material used for the discussion forums was based on a 'case of the month' format. Each month a new case was posted for registrars to view, along with a relevant journal article to aid their understanding of the topic. Cases

Table 1. Registrar and medical educator usage rates of discussion groups pre and post redesign of JUCET-GP website

Preredesign of website group		Multiple visits*	Intermittent visits [^]	Never logged in	
Basic group (n=25)		18 (72%)	5 (20%)	2 (8%)	
Advanced group (n=21)		10 (48%)	8 (38%)	3 (14%)	
Combined advanced and basic group (n=46)		28 (61%)	13 (28%)	5 (11%)	
Medical educators (n=8)		4 (50%)	2 (25%)	2 (25%)	
Postredesign of website group		Multiple visits range: 2–21 median=5 ^{^^}	Single visit	Never logged in	Posted reply to forum
Basic group (n=36)	29 (80%) No. of login problems=8	5 (14%) No. of login problems=2	2 (6%)	10 (28%)	
Advanced group (n=15)	10 (67%) No. of login problems=7	2 (13%) No. of login problems=1	3 (20%) No. of login problems=1	6 (40%)	
Subsequent group (n=34)	16 (47%) No. of login problems=15	15 (44%)* No. of login problems=4	3 (9%) No. of login problems=3	2 (6%)	
Medical educators (n=15)	11 (73%) No. of login problems=7	4 (27%) No. of login problems=3		3 (20%)	

* Usage of website at least 10 times in a 6 month login period
[^] Usage of website less than 10 times in a 6 month login period
^{^^} Median calculation excludes two participants (one educator, one registrar) who accessed the site on most days during the 6 month period
^{**} Of the 15 subsequent term registrars who visited the site on only one occasion, 12 viewed information available from the home page but did not view discussion forums or download any resources, whereas other participants accessing the site only once explored the site, viewed forums or downloaded resources during that visit

Table 2. Themes emerging from focus groups and representative sample comments

Theme	Sample comment
Relevance and integration of learning material	It's good to have some direction into what we should be reading
IT support and reminders	The updates were good as I often forgot about the discussion group The training was good as I am not very skilled in computers The training was important as this is a totally new way of learning for me
Self conscious of posting messages	I feel overly conscientious seeing myself posting all the messages
Lurking (ghosting) behaviour	I like having a look and seeing what other registrars are doing I'm not into discussion groups but I am happy to sit on the sidelines I prefer face to face interaction rather than online discussions
Time issues	There's just so much going on, there's so much to learn, and I just don't have time

were developed with feedback from general practice registrars. Basic and advanced term registrars were given different cases in line with their curriculum requirements. Email reminders were sent each month to encourage participation, although all participation in the online component was on a voluntary basis.

Evaluation

The numbers of logins and discussion postings were tabulated for each LMS from logs generated by Topclass and Moodle. Topclass recorded the number of logins for each user and the length of time for which they were logged in. Moodle tracked the number of logins for each user, each page visited or activity performed during a site visit, and errors logging in to the site. The number of discussion posts for each user was tallied manually for both cohorts. Registrars in study one were approached for feedback and suggestions, with formal evaluation being undertaken in the form of a focus group conducted at the end of the training term. Registrars in study two have not yet been approached for feedback and suggestions.

Analysis

Usage of forums was measured by the number of registrars accessing discussion forums and web resources, and by the number registrars who posted messages to those forums. Chi-squared (χ^2) tests of homogeneity were used to compare usage of forums and posting to forums across the basic and advanced groups in the two cohorts (2004 and 2005), and between the basic, advanced and subsequent groups in the 2005 cohort.

Qualitative analysis from the 2004 cohort involved transcription of digitally audiotaped focus group sessions to explore themes that emerged from the targeted discussion.

Results

Usage analysis, study one

As can be seen from *Table 1*, 89% (41 of 46) of registrars in the first study logged in at least once to the discussion group. Sixty-one

percent (28) were classed as frequent users of Topclass, of which 39% (18) were from the basic term and 22% (10) were from the advanced term. Eleven percent (5) did not login at any stage of the training term. There was no significant difference between the number of registrars in the basic and advanced terms to use the discussion forums and data from these samples have been combined in further analyses. Twenty-six percent (12) of registrars posted messages to the forum and these were evenly distributed across the basic and advanced groups.

Focus group analysis, study one

Focus group participants reported that the monthly forum folder indicated current articles as reliable sources of information for them to review and engaged them in topics useful to everyday general practice. Further comments underscored the importance of IT support, appropriate training and regular email updates to remind them to login into the forums. Registrars felt that posting messages was a great idea but some felt very self conscious about being the only ones posting messages. Registrars commented that at times they logged into the system to look at what was posted without posting anything themselves. Silent participation of this type is referred to as 'lurking' behaviour.⁸ The themes emerging from the focus group are summarised in *Table 2* along with sample comments exemplifying each theme.

Despite the problems identified by registrars in the focus groups, overall they valued the online forums, especially in periods between face to face workshops. Most stated a desire to have online learning and discussion groups for their remaining training time, but lack of time and competing demands were major barriers to them logging in more often.

Usage analysis, study two

On the basis of feedback from the first study, the discussion forums were integrated more closely with the JUCET-GP website to serve as a complete provider of online resources. Discussion forums moved to the Moodle

platform, which has a more customisable interface than Topclass, allowing medical educators more flexibility in setting up the site and providing additional portal like features, eg. information about other participants, the facility to see who else is online at a given time, and a summary of recent activity on the site.

As can be seen from *Table 1*, 80% (29 of 36) of the basic term registrars and 67% (10) of the advanced term registrars visited the Moodle site multiple times (median five visits), whereas only 47% (16 of 34) of the subsequent term registrars visited the site on multiple occasions.

Although most of the 13.5% of basic and advanced term registrars who visited the site only once explored the site extensively during that visit, 80% (12 of 15) of the subsequent term registrars in this category did not view the forums or download any resources. A comparison of the combined basic and advanced group versus the subsequent group in accessing discussion forums revealed significantly more access by the advanced and basic groups than by the subsequent group (see *Table 3*, $2=12.22$, $df=1$, $p<0.01$).

Difficulties logging in, study two

Of the 100 registrars and medical educators in study two, almost half (47) experienced difficulty logging in at some stage of the study period due to using the wrong username or password. A number of registrars attempted to login with multiple guesses at their username, including various email addresses and permutations of their initials and names. The three subsequent term registrars who never logged in did in fact try to do so on one or more occasions without success. The subsequent group had the least support available to them in terms of IT training and face to face workshops, and showed correspondingly less use of the online resources overall and appeared to encounter more difficulty in using the site itself.

Posting to forums, studies one and two

Around one third of the basic and advanced registrars posted messages on the forums

Table 3. Forum activity by combined basic and advanced group versus subsequent group in 2005 (Moodle)

	Usage of forums	No usage of forums	Posted to forums	Did not post to forums
Basic and advanced group (n=51) 2005	46	5	16	35
Subsequent group 2005 (n=36)	19	15	2	34

and there was no significant difference across the two cohorts studied (see *Table 3*, $2=0.1$, $df=1$, $p>0.05$). Subsequent term registrars did not have their own 'case of the month' forums but were able to post to the basic or advanced group forums. Only 6% of subsequent term registrars posted any messages, which was significantly fewer than in the basic and advanced groups in the same cohort (see *Table 3*, $2=5.45$, $df=1$, $p<0.05$).

Medical educators, studies one and two

Only six of the eight medical educators given facilitator rights in study one chose to participate in the online discussion group. However, all medical educators logged in at least once in study two, suggesting the redesigned site was easier for them to use. Indeed, most medical educators in study two made multiple visits to the site, although they were not obligated to participate in the online component of the JUCET-GP training program. The primary facilitator contributed extensively to the discussion forums in both studies and this strong facilitator role has been critical to the success of the online learning program. Despite visiting the forums and reading all the posts, most other facilitators did not post any messages of their own.

Discussion

The Moodle interface used in study two allowed a greater sense of integration of learning materials with discussion forums and promoted a greater sense of participation in a learning community through the availability of portal like features such as alerts as to which other users are online, participant profile information, recent site activity and relevant news updates. Consistent visual branding throughout the website and discussion forums made it easier to explore all the online resources relating to the JUCET-GP program.

Moodle's logging format allowed better understanding of lurking behaviour of registrars by revealing that most registrars read forums and downloaded resources without actively posting messages. Presumably, if the presented case has been adequately dealt with by the initial respondents, other registrars did not need to add comments such as 'me too' or 'I agree' merely to register their presence. Nevertheless, they participated in the learning experience afforded by the forums much as silent members of a face to face seminar or workshop group participate in the face to face learning experience.

Analysis of site error logs revealed the extent to which users have difficulty remembering their username as well as their password. Although automated password retrieval facilities can assist with the latter case, it is difficult to automate support for people forgetting their usernames. Across the different groups within this study, there was a definite trend towards less effective use of online resources as less IT support was provided.

The discussion forums were specifically targeted to basic and advanced term registrars and 'case of the month' forums were tightly integrated with their most recent learning activities. Although approximately half of the subsequent term group appeared to embrace the learning opportunities afforded by the JUCET-GP forums, the other half did not persist with using the site, suggesting that access to resources and discussion forums without active facilitation is less successful than online learning in a well supported learning environment. Finally, the development of curriculum linkages to other learning platforms, eg. peer release session, is an important factor in promoting use of online resources.

Implications of this study for general practice

- Peer learning, lectures and online learning should have links to each other in the delivery of curriculum.
- The use of an online platform that tracks and reports usage can assist in this integration, and analysis of site error logs could assist with more targeted user support.
- An online learning environment can build a sense of learning community and keep registrars in touch with each other and their medical educators between face to face contacts.

Conflict of interest: None declared.

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