

ISSUES ARISING FROM AN ONLINE RESOURCE-BASED LEARNING APPROACH IN FIRST YEAR PSYCHOLOGY

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Abstract

This paper reports on an evaluation of an innovative, online resource-based learning (RBL) approach used in first year psychology at Deakin University. The evaluation revealed a number of critical issues that must be considered to ensure effective implementation of an RBL approach. Emphasis is given to educational considerations covering the use and value of a diversity of print and electronic learning resources, online discussions and face-to-face teaching arrangements. The importance of strong integration of all elements of the learning environment, and provision of clear guidelines to learning are highlighted.

Keywords

Resource-based learning; online delivery, first year experience, lifelong learning

Introduction

This paper reports on an evaluation of a hybrid online resource-based learning (RBL) approach in tertiary education. The evaluation revealed a set of interrelated educational, technical and organisational issues associated with such an approach. The paper focuses primarily on education considerations and concludes by identifying future research directions relating to online RBL and its impact on learning outcomes.

Other issues have been highlighted elsewhere (Holt et al., 2001). Together they provide a clear agenda of action in considering the implementation of online RBL approaches in tertiary settings.

The context of implementation is a major first year university subject in introductory psychology, HPS111: *Introduction to Psychology A*, which is undertaken by about 1000 students studying on-campus at three Deakin University campuses, and off-campus nationally and internationally. The student cohort is large, dispersed, and diverse in their backgrounds and interests in undertaking psychology studies.

The evolutionary move to an online RBL approach was seen as an educationally sound response to a number of contingencies, both external and internal to the University. During 2001 it was considered timely to undertake a major evaluation of the online RBL experience by collecting teaching staff and students' views on their experiences of working within such a learning environment. The evaluation was aimed at informing further developments in online RBL within the discipline of psychology, other related health and behavioural science fields, and the University more generally.

Background

Defining resource-based learning

Rowntree (1991, p.1) defined resource-based learning as offering learners the capacity to '...depend far more on materials, and far less on face-to-face teaching, than they do in other types of learning systems'.

RBL demands that students *actively* engage with multiple learning resources with well-articulated educational purpose, so dependence is not of a passive kind (Lavery, 2001). Such engagement does not exclude group interactions in the classroom and/or mediated through some computer-based communication environment.

Gibbs et al. (1994, p.9) describe RBL approaches incorporating both independent resource-based learning and classroom-based learning in varying degrees as ‘hybrid’ RBL systems. The increasing use of electronic and online learning resources further transforms RBL into online supported RBL hybrid systems. This transformation highlights the importance of such systems developing generic information and IT literacy skills which are in turn seen as key skill sets underlying lifelong learning.

The resource-based approach puts the onus on students to take responsibility for their own learning. At the same time, it allows for increased flexibility in respect to when students learn, how they learn, and how much time they spend on learning activities. The range of media now available through the use of technologies potentially caters more effectively for diverse abilities, learning styles, and preferences.

The adoption of online RBL in psychology

Over the past three years the teaching of first year psychology has undergone a series of changes due to the difficulties of teaching large numbers of students from diverse backgrounds. Traditional teaching approaches no longer catered for the range of abilities, learning styles, and particular needs of different cohorts of students. Many experienced difficulties in learning the key concepts in the course. Content was largely driven by the requirements placed on the University by the Australian Psychological Society (APS), so the extent to which it could be changed to accommodate different cohorts was limited. Instead, staff changed the way the content was delivered providing several options for assisting students to master the subject matter. The rationale for this move to flexible, online delivery was to make the course more accessible for off-campus students, enrich the course for on-campus students, develop students’ independent, self-directed learning skills, and allow staff maximum control over development, thus ensuring currency of material. The evolution of the online RBL design aimed to support an established psychology curriculum and associated assessment approaches. It was not aimed at supporting the incorporation of new pedagogy, although resources like the Psychology Electronic Warehouse (PEW) within the online environment have elements of experiential learning.

The addition of further online learning resources and communication activities through the adoption of a learning management system in 2001, coupled with changes in the level and nature of classroom teaching over a period of time, have recently seen first year psychology’s overall learning environment being described philosophically and practically as a ‘hybrid’ form of online supported RBL. It had its origins, though not necessarily clear strategic educational intent, in the development from the mid 1990s of PEW, aimed at helping students learn about the scientific process in the context of their psychology studies (Rice et al., 1999). This case illustrates the complexities of multi-faceted, online learning developments which are not necessarily pre-ordinately designed. The way the various disparate initiatives came together suggested an RBL approach which was shaped by a mix of educational, cultural, political and technological factors. Online RBL now forms the overarching framework for the design of an environment aimed at meeting the needs of all learners wherever they may be located, whatever their degree of participation in face-to-face teaching activities, and whatever their degree of access to electronic, online and traditional learning resources.

Evaluation objectives and methods

The aim of the evaluation was to illuminate issues associated with resource-based learning and students’ use of the online learning environment. Evaluation objectives and methods are summarised in Table 1.

Objectives	Methods
Identify students’ media preferences.	Student surveys: On-campus students completed questionnaire in tutorials. It was mailed to off-campus students with reply paid envelopes.
Ascertain the level of use of resources, and their perceived value.	
Ascertain the level of involvement in the CMC	Student survey

environment, and its perceived value.	Analysis of online announcements and discussions in terms of content and style.
Identify staff perceptions of the environment	Taped interviews with key staff teaching in the unit.
Identify technical, infrastructure and training issues.	Data from survey and staff interviews.

Table 1: Evaluation methodology

Dimensions of the Learning Environment

Students studying during 2001 were required to use the University's LMS, TopClass, to access study guidance, assessment information, class announcements and discussion. The study guidance directed them to several other resources including texts, CD-ROMs, and web links. As outlined in Table 2, the learning environment consisted of pre-packaged learning resources (some accessed through LMS), a communication environment, and face-to-face classes for on-campus students.

Prepackaged learning resources	Computer-mediated communication	Face-to-Face Teaching (for on-campus students)
<p>Printed material</p> <ul style="list-style-type: none"> • Subject matter textbook • Student practice test and review manual • Guide to psychology report and essay writing • 3 page printed document: induction to online environment. 	<p>Announcements from the Unit Chair provided instructions on how to access the technology, and information about assignments.</p>	<p>One two-hour lecture per week: Rather than traditional content lectures based on the text book, the first lecture in a module provided a review of the topics and learning objectives, while subsequent lectures were of an applied nature</p>
<p>Online resources</p> <ul style="list-style-type: none"> • Study guide, • Student Manual • Assessment requirements • Introduction to Psychology Electronic Warehouse • Psychology Place Website • Publisher Website 	<p>Discussions about course content and administrative matters - mostly to clarify assignment requirements, for social discourse, and to solve technical and access difficulties. Content-related discussions ensued in social psychology and history of psychology topics.</p>	<p>Eight one-hour practical classes across the semester. For laboratory activities and discussions relating to module topics.</p>
<p>CD-Roms</p> <ul style="list-style-type: none"> • Psychology Electronic Warehouse • Associated textbook CD-ROM 	<p>Emails to individual students for private communication.</p>	<p>Consultation room access to tutors as required for personal study queries/difficulties.</p>

Table 2: Dimensions of the learning environment

Key Issue 1: Delivery of Course Material

Accessing the Coursework

Two issues arise in relation to access: the ability to technically access the LMS environment; and having accessed it, the ability to easily locate and use the required learning resources. Navigating the online environment and locating coursework resources is a problem when students do not have printed instructions. Although induction notes can be provided online, students have to access the website to read or download the instructions. If they can't do this easily, they can't obtain the instructions for locating resources. In the psychology case, access appeared to be more of an issue for on-campus students than for off-campus students. More than half the younger, less experienced students found it difficult to access the LMS, locate material, and learn to use it. Previously, only off-campus students received a printed

study guide; on-campus students relied on lectures and tutorials for study guidance. In 2001, the LMS was used to deliver study materials to both on- and off-campus students because most staff believed there were advantages in having all coursework online so students could access it at any time. However, students who wanted print copies had to print each section separately because pdf versions were not available.

Access difficulties can cause frustration and alienation before the real work of the course begins. Being new to University studies, first year students may appreciate a recorded audio or video tutorial on how to access the technology, plus a step-by-step printed guide to access. They may also appreciate vital course information in print to ensure they know what is expected of them *before* they access online material.

Media Preferences

The development of online course material broadens opportunities for students to use a variety of media to assist learning. This raises the issue of media choice for particular learning activities. It appears that many students (63% in the psychology case) still prefer print for studying, because it is more portable, it can be annotated as they read, and/or easy, convenient Internet access is not available. Some students may prefer print because they are accustomed to it, and haven't explored the benefits of other media. Off-campus students were more interested in a variety of media because it helped to motivate them, and helped them learn difficult concepts by presenting them in alternative ways. Through necessity, they are independent learners more open to a variety of media.

It is necessary to find a balance between providing an acceptable amount of information in print and providing elements online or in CD-ROM that are best suited to the medium. An analysis of course material needs to be done to ascertain which aspects would be best delivered in print. The provision of pdf versions of online Study Guides would facilitate easy download for those who prefer print.

Some students (20% in the psychology case) enjoy working with multimedia either on its own or in combination with other media. Hence, a combination of media will best meet all learning needs by providing options. Students can choose to learn with print only, multimedia only or with a combination.

Level of usage of resources

In RBL environments, there are issues to do with the purpose for providing particular resources and the extent to which students use them. Usage should be linked to purpose. If students do not know why a particular resource has been provided, it is more likely they will not use it, or use it less productively.

For optimum learning, resources should be used as intended by designers. Furthermore, it should be clear to students whether usage is mandatory or discretionary. If mandated, high usage can be expected. The textbook was clearly the most widely used resource in first year psychology: almost all students used it and found it valuable for meeting learning objectives. This is consistent with students' preferences for print. The optional computer-based resources (websites and CD-Roms) were used by over half the students, but approximately one third used them minimally. Time constraints limited the extent of usage, though a few found it so engaging, they spent more time on it than intended. Other variables probably affected usage also, including students' motivation, their aspirations, abilities, and competing priorities. Or, as Brown and Gibb (1996) note, students may simply dislike resource-based learning, or they may not know how to learn effectively from resources. Teacher intervention may be required to address this.

Usefulness of resources

To be useful, resources should make a unique contribution to students' learning and cater for particular learning styles and media preferences. Usage should be explicitly linked with learning objectives and assessment requirements. Although many psychology students were overwhelmed with the range of resources, and confused about what they should prioritise, the majority appreciated the value of them. (See Tables 3 and 4) Printed resources were seen to be more essential than online resources: nonetheless the majority of students regarded the latter as useful or essential. The level of interest in the resources, and the value ascribed to them, warrants their continued inclusion in the course.

With more specific directions about the particular contribution that each resource makes to particular aspects of learning the content, students should be better equipped to make the most of them within a limited timeframe, by making more informed decisions about what to use for what purpose. It would be

useful to provide a matrix aligning learning objectives with assessment tasks and relevant resources. Alternatively, a diagram of the constellation of learning resources could be included in the orientation package.

RESOURCE	Not useful		Useful		Essential	
	Learning objectives	Assessment requirements	Learning objectives	Assessment requirements	Learning objectives	Assessment requirements
Subject matter textbook	1%	2%	18%	22%	81%	76%
Practice test & review manual	8%	11%	55%	46%	37%	43%
How to write psych. reports	10%	5%	42%	36%	48%	59%

Table 3: Usefulness of textbooks for helping students meet learning objectives and assessment requirements.

RESOURCE	Not useful		Useful		Essential	
	Learning objectives	Assessment requirements	Learning objectives	Assessment requirements	Learning objectives	Assessment requirements
Psychology Place website	36%	38%	55%	50%	9%	12%
Textbook CD	33%	36%	61%	56%	7%	7%
Textbook website	30%	28%	57%	57%	14%	15%
PEW	17%	19%	54%	50%	29%	31%

Table 4: Usefulness of resources for helping students meet learning objectives and assessment requirements..

Key Issue 2: Guidelines to Facilitate Learning

Perhaps the most significant issue in an RBL environment is the provision of appropriate guidelines to learning delivered in the most appropriate way. On this Gibbs et al. (1994, p.18) note, 'It is becoming clear that students need careful and thorough induction into new learning processes, explaining what is expected and how things will operate as well as developing new skills'. A carefully constructed study guide is needed (without discipline content) that directs students on a week by week basis to exactly what they need to learn and why, what resources they need to use and why (including face-to-face classes), what resources they should prioritise, and why. If students are unable to determine what they need to do and when, they are likely to lose motivation and fall behind in their studies. To get students started, some of this information should be provided in print while other directions can be delivered online.

Provision of printed learning orientation material

In psychology, a key issue raised by students was the perceived lack of clear guidelines to learning. Many were confused about what they had to do (outside classes), and when they had to do it. While directions were included in the Deakin online Study Guide, many students did not know this initially. It took some time for them to realise they had to log on to LMS to receive announcements and instructions about the work schedule and assignment requirements, by which time, they were behind in their study. Staff correctly maintained that everything students needed to know and do was set out in the Study Guide. However, even when students did access the material, they had difficulty locating what they needed.

The psychology experience suggests that in any RBL environment, students would benefit from a printed orientation publication that includes a broad range of vital information about weekly schedules, formal assessment, use of a learning management system (if pertinent), use of CD-ROMs, the range and purposes of different learning resources, communicating effectively online, relevance of unit aims and objectives to student attributes, and the rationales of lectures and tutorials and their relationship to other learning resources. Such an orientation publication could provide links to academic support study skills' resources and services related to independent learning integrated with the discipline-based advice and support on the best ways of using the RBL environment.

Creating an online study guide

Traditionally, study guides have been seen to carry the following key educational functions: arouse interest, link with previous knowledge, tell students what they will be learning, present material to be learned, and relate material to experience. They also help to activate learning, encourage practice in using material, enable students to check progress, promote learning in new situations, and help them do better

(Lockwood, 1998, Rowntree 1997). There is no reason why these functions cannot be discharged across a range of print and online resources, providing there is an overarching resource that acts as a starting point or 'home base'. It can't be assumed that first year students will be self-directed learners from the outset (McInnes et al., 1995).

In psychology, study guide functions were spread principally across the Deakin online study guide, the commercial study guide, and the prescribed textbook. The CD-ROM and Websites made useful supplementary contributions to discharging these functions. As a starting point, students were issued with a 3-page set of instructions directing them to the online environment, where they were provided with what was essentially a reading list. Generally, an online study guide should be concerned with guiding students in more explicit detail through the key resources. It should identify when other resources could be valuably used, for what particular learning purposes, in what possible level of priority, and for notionally what periods of time.

Workload

Related to the issue of guidelines is workload. While there is a need for students to be engaged in various extension activities in online environments, clarity is required about what constitutes essential work and optional work in respect to the use of each resource. Without this, students may feel overwhelmed with the range of resources and the high workload that potentially ensues. Having information about the particular, unique value of each resource would assist students to make decisions about what to use and for how long. This would help to keep usage within acceptable workload limits.

Many psychology students were overwhelmed because they thought they had to do everything suggested in the Study Guide. Because of this, they believed the workload was unreasonable and more onerous than workloads in other units. Staff believed the actual workload was reasonable, but noted that students perceived the workload to be higher than it was because they were confused about the extent to which they should use the range of resources available.

Guidelines about essential use of resources, and use for extension purposes could be linked to the attainment of grades for assessment purposes. That is, high grades could be linked to more efficient, effective use of a wider range of resources.

Key Issue 3: Online Discussions

Usefulness of LMS computer-mediated communication

There is ample evidence to suggest that online communication can be a valuable component of a course. (e.g. Harasim et al., 1995; Salmon, 2000) Value is usually attributed to active engagement in discussions designed to challenge and extend ideas and understandings. However, analysis of the psychology discussion areas indicated that students who were not actively engaged also benefited from CMC. Announcements from the unit chair were valued quite highly because they kept students up-to-date and on track. Similarly, a very active community of students developed over the semester discussing issues of a broad and at times, provocative nature. While only a very small number of students (15) actually *posted* messages, many more apparently benefited from reading them (see Table 5). Lurking is usually regarded as less effective, but in this case, students valued the discussion messages even though they did not contribute themselves. They found them useful because they provided answers to questions, elaborated key concepts, and demonstrated that other students were having similar problems. Higher proportions of off-campus students undertook each activity and higher proportions found them useful. They felt more connected to others in the course and more able to communicate with the unit chair.

The nature of these discussions could be interpreted as positive and reflective of a robust, healthy, online student community at work. Critical debates centred not only on module content, but also on different aspects of the first year learning environment, including the pros and cons of RBL and online learning, the role of classroom teaching, IT infrastructure matters, and the relative advantages and disadvantages of different modes of study. It could be argued that these peer-led discussions helped students to appreciate and develop the types of independent learning skills required to learn effectively in the online RBL environment.

On-campus student participation possibly reflected an on-campus classroom, where some students dominate the discussion, but others benefit from listening. The implication is that it is worthwhile continuing with and expanding online discussion groups irrespective of the number who actively engage. In particular, more content-based discussions could be offered for selected purposes at selected times. These could be advertised ahead of time to ensure students are aware of them.

ACTIVITY	% of students who accessed online messages		% of those who read them who found them useful or very useful	
	On-campus	Off-campus	On-campus	Off-campus
Read Announcements	490 (77%)	37 (88%)	351 (72%)	34 (92%)
Read discussion message	342 (45%)	33 (78%)	191 (51%)	28 (85%)
Linked to additional sites through LMS	563 (75%)	40 (95%)	318 (56%)	27 (68%)

Table 5: Usefulness of online communication activities

Moderating Online Communication

The task of moderating online communication requires quite different skills from those used in face-to-face classrooms. (Salmon, 2000) Without visual cues there is some potential for the written word to be interpreted in ways not intended by the moderator. In many cases, online moderation is learnt on the job with minimal, if any, professional development on effective moderation strategies. Some staff tend to transpose their usual tutorial style to the online environment. This may not be appropriate because misinterpretations and misunderstandings can arise.

Moderation can significantly increase staff workload when there are potentially large numbers of students. In the psychology unit, moderation was the responsibility of the Unit Chair. Initially there were some problems managing the discussion area because the system was cumbersome, it was difficult to control the message structure, and difficult to respond to all individual messages. Sometimes, the moderator allowed other students to respond to students' queries which generally worked quite well. This helped to alleviate the demands of moderation which were considerable at times for one person.

With large undergraduate classes, moderation of online discussions needs to be shared across staff members including tutors. Just as with face-to-face tutorials, the presence of tutors in the online environment could assist the Chair, and may help to personalise the experience and encourage more students to engage in, or at least attend, online discussions. There may be benefits in having campus-based discussion boards which are run by local teaching staff at each campus. However, this inevitably has resource implications.

Key Issue 4: Face-to-Face Teaching

In an RBL environment, the rationale for face-to-face teaching (particularly lectures) needs to be reconsidered. Content resides largely in the resources provided and doesn't need to be systematically disseminated in class. This raises the issue of the role of face-to-face teaching in such environments. Theoretically, students can complete their studies without attending classes – off-campus students already do so. But as Brown and Gibbs (1996, p.3) point out, contact is still important for pacing, motivation, sorting out problems, and understanding. Similarly, McInnes et al. (1995) emphasise 'the importance of the social context' for adding value to the learning experience, particularly for first year students.

Recently, the value of lectures has been questioned because they have often been ineffective learning experiences. Lecture attendance has generally been associated with passive learning and therefore regarded as less valuable than interactive learning experiences. However, when alternative models are trialed, students do not necessarily accept them or appreciate their potential. Many who attend lectures still prefer the traditional model. Others appear to be less inclined to attend particularly if they perceive them to be irrelevant. In first year psychology, a new lecture format was trialed that presented several examples of the creation and application of psychological knowledge and significantly reduced the traditional delivery of core content. However, students could not always see the relevance of lectures, did not have a clear understanding of the rationale for the new format, and did not appreciate its potential for broadening perceptions about applying psychological knowledge. Moreover, when several lecturers each

focused on their own research, there was perhaps less opportunity for crystallising the core content and linking it explicitly to learning objectives. As a result, some staff reported a reduction in lecture attendance. Some students requested more personalised face-to-face tutorial help each week rather than 2 hour lectures. Others wanted lecture notes to be available in print or online for pre-reading and subsequent annotating as they were in other units.

The adoption of audio-streamed lectures may address some of these issues by ensuring that the unique content is available for students to access at any time. This would be of particular benefit to off-campus students who do not attend lectures.

Key Issue 5: Perceived Integration of Dimensions

For optimum learning, all components of a learning environment should be integrated. In particular, online resources should be clearly linked with face-to-face classes to ensure that students see their relevance and derive benefit from them. In first year psychology, the LMS environment was designed as a stand-alone vehicle for online resources and discussions. This worked well for off-campus students but many on-campus students didn't see the relationships between the various resources because they were treated separately from face-to-face activities (see Table 6). Staff confirmed that many students had problems sorting out how the dimensions of the learning environment fitted together. They continually sought guidance from tutors rather than refer to online Study Guide materials to find out what to do. This was problematic because some tutors did not know about the online environment until after the semester had started. As a result, there was ambiguity about the purpose and relative importance of each resource.

Resources	Comments	Level of integration
LMS study with the text book	LMS study materials were thought to be closely aligned with the textbook because the Study Guide consistently and frequently referred students to topics and chapters in the textbook.	Very well integrated
LMS environment with face-to-face teaching	Lectures and tutorials were seen to be disconnected from LMS material except at assignment and exam time. They were mentioned as resources to use to help prepare for assessment, but consistent linking of topics was not evident to many students.	Introduced in introductory lectures, but not well integrated in most other classes.
LMS environment with Psychology Electronic Warehouse (PEW)	LMS material referred students to the PEW as appropriate for each module. Students became confused because the technical systems were not closely linked so they could not move seamlessly from one to the other.	Well integrated conceptually; lack of technical integration caused confusion
LMS study with external Web resources	Students were directed to link to external web resources at particular stages throughout the Study Guide. They had no problems with this.	Well integrated online.
Lectures, tutorials and labs, with Psychology Electronic Warehouse	Students were introduced to the PEW in introductory lectures, and informed about access, but the content of the PEW was not consistently well linked with the content of face-to-face classes.	Not well integrated

Table 6: Students' perceptions of the level of integration of resources and experiences

To ensure better integration of dimensions, it would be useful to undertake a mapping exercise that aligns on a week-by-week basis the learning objectives with the lecture and tutorial content, print and online resources, and assessment requirements. In addition, briefing sessions for tutors should ensure they are familiar with, and understand the rationale for, every aspect of the learning environment, online and off-line. They should be regarded as teachers in a total environment, not just in a face-to-face context.

Key Issue 6: The Learning Needs of On-Campus vis-a-vis Off-Campus Students

As far as possible, dual mode universities strive to provide parity of experience for on- and off-campus students. The move to online provision of resources and student-centred, independent learning, is one way of achieving this. McInnes et al. (2000) found that larger numbers of on-campus students are working longer part time hours, so flexible resource-based online environments probably enable them to fit university studies around work commitments, as it does for off-campus students. However, this

approach may not cater for the learning needs of all students. While some on-campus psychology students were happy to learn independently via the online medium, others felt their on-campus experience was affected detrimentally by the provision of online course material and directions. They expected a more personal experience and felt they were treated too much like off-campus students. They would have liked to develop personal relationships with tutors and other students through more tutorial group activities.

Notwithstanding this, teaching first year psychology at multi-campus, multi-modal Deakin is logistically very difficult. The level of resources provided to the School does not enable it to meet the level of contact hours desired by on-campus students. However, it may be advantageous to rethink the way resources are used. For example, more concentrated personal support could be given to students early in the semester, then reduced as they become more accustomed to independent online learning. Similarly, weekly tutorials could be trialed for the first month of semester to ensure that students are eased into the independent online learning approach. Better integration between face-to-face classes and online content and discussions could ensure continuity of personal relationships established early in semester.

Key Issue 7: The Learning Needs of First Year Students

When students' expectations of a course are not met and they feel overwhelmed, they become confused and anxious, and may resolve not to pursue their studies. First year students in particular need some nurturing to help them negotiate the transition to tertiary study. They have to not only learn discipline knowledge, but also learn what it means to be a University student, how to study online, how to use technical systems, how to optimise use of resources, and how to become independent learners.

Many students were overwhelmed by the perceived demands of studying psychology at Deakin in first semester of first year. They wanted more direction than the timetable gave them about what they had to do and when. When the scope and aims of the coursework were presented to them in the Deakin Study Guide along with the numerous resources, some students became anxious about the volume of work they thought was required. This led to a desire for more personal contact with tutors because their expectations of what it meant to study psychology were not aligned with what was expected of them.

There is clearly some justification for treating first year students as a distinct cohort with quite specific needs. They need to be eased into the coursework rather than *thrown in the deep end*. More personal support is needed for them to become effective independent learners. It cannot necessarily be assumed they will learn this by themselves—they may need strategies to assist them. As McInnis et al. (1995, p.118) have argued, first year students 'require more work from the university and academics than in later years'.

Key Issue 8: Preparation of Staff and Students for Learning Online

Without thorough preparation of staff and students for online learning, the experience will inevitably be compromised. All staff should be seen as operating in a total environment. Learners are more likely to reap the benefits of resource-based environments if staff are systematically prepared for teaching and learning online in conjunction with face-to-face classes. In psychology, many students and some staff experienced pressure because they were not adequately prepared. Students expected more individual help from staff but there were insufficient personnel resources to provide it. At the same time, staff expected students to take some responsibility for their own learning, and attempt to solve problems themselves. Much was expected from tutors who were paid for a minimum amount of hours, usually only for face-to-face classes. The remuneration built into this for learning how to teach online was inadequate when they had had no previous experience.

In such situations, resources need to be reallocated for tutors to ensure they are teachers in a whole environment, not just teachers of face-to-face classes. As Cox and Gibbs (1994, p.26) observe, 'Where tutors are new to RBL, or not very closely involved with all aspects of the course, induction sessions should be run for them, in which the rationale and operation of the course are carefully explained'. They need to be very familiar with all resources, and their purposes. They also need to know how to advise students on their use outside the classroom.

Future directions

The implementation of online RBL approaches demands careful educational consideration. Educational ideals must be supported by robust and easy to use corporate learning management systems. Moreover, IT infrastructure must be reliable and accessible, and IT technical training and support for staff and students is essential. Ultimately, the adoption of flexible, online RBL approaches must provide environments conducive to quality learning and the achievement of particularly valued generic learning outcomes. The development of skills in effectively using information (information literacy skills) and electronic information sources (IT literacy skills) underpin the prized overall skill of lifelong learning (Candy et al., 1994). As McInnis and James (1995, p.111) found in their study of the first year university experience, 'The need to provide first year students with a challenging academic environment in which the foundations for lifelong learning are established is hopefully the strongest message emerging from this study'.

In response to the evaluation feedback the Unit website was redesigned and now includes clear guidance to students on the purpose and relative value of the key learning resources. Further evaluative research is required to ascertain whether RBL in first year psychology develops a solid foundation of skills related to lifelong learning upon which students build and refine in their subsequent university studies.

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