

Student attrition before and after modifications in distance course delivery

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Abstract

Student attrition and overall course grade attainment of first year university students enrolled in ‘shovelware’ (n = 76) versus ‘social interactive:cognitive teaching’ (n = 120) versions of the same course delivered at a distance are presented. Comparison of student attrition showed a statistically significant decline in student attrition in the interactive:cognitive version (a decline of 28.1%, Chi = 56.03, df=1, p=0.000) and an elevation in the proportion of students receiving pass or higher grades (Chi = 22.93, df= 9, p =0.01). This paper outlines the changes that were engineered into the social interactive:cognitive teaching version of the course (e.g., active e-mails, discussion board, time-limited lecture postings in lecturer-student and student-student dialogue models) and discusses possible reasons for the retention and grade attainment benefits reported here.

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Introduction

According to Berger and Lyon (2005), concern over student attrition, defined as students who fail to re-enrol, is a recent phenomenon. Today diminishing Australian government assistance has placed pressure on institutions to produce greater efficiencies (Harding, 2001). One of these measures now includes a greater focusing on students ‘lost’ in the system (Tinto, 2005).

How to define adequately ‘student attrition’, or the related term ‘student retention’ (defined as the ability of an institution to retain a student from admission to graduation), has not proven easy (Seidman, 2005). Traditional definitions have focused on the number of students who start and finish their university program. However, the growing heterogeneity of the contemporary student population has forced a consideration of alternative ways to consider this issue. For example, increasingly students choose a blended approach to learning (Cross, 1981). Some take time out to raise a family, pause when work demands preclude study and/or enter university in one program only to transfer to another program and/or institution at a later date.

Definitions of attrition have been of limited value to the individual lecturer interested in gaining insight into the influence that they may be having on their students. Implicitly a new definition has crept into the literature when lecturers report their individual course experiences (Diaz, 2002; Richardson, Morgan, &

Woodley, 1999). Attrition in these cases is generally considered as the number of students beginning the course minus those completing the course (Diaz).

A new twist on student attrition has also arisen with the advent of educational delivery from a distance. Distance education is characterised by the separation in place and/or time of instructor, learner and learning resources. Early delivery consisted of written information delivered in the mail. Today a wider range of possibilities exists, with combinations of written, audio and video formats offered via asynchronous/synchronous sessions. The most frequent mode of delivery is currently via the Internet (Frith & Kee, 2003; Ryan, Hodson-Carlton, & Ali, 1999).

An established downside of distance education is the higher than face-to-face student attrition (Carnevale, 2002; Carr, 2000). It is important to note that some researchers have reported student attrition in distance education delivery as high as 80 per cent (Diaz, 2002; Flood, 2002). While there is no one accepted factor thought to be influencing the higher attrition rates (Gibson & Graff, 1992; Grace & Smith, 2001; Morgan & Tam, 1999) some have implicated the tendency towards 'shovelware' or the direct copying of classroom based material onto the Internet (White, Roberts, & Brannan, 2003).

Relatedly, others advocate that distance education requires a reconceptualisation from traditional methods of teaching and learning to a more student-centred, facilitative-interactive learning pedagogy (Gallie & Joubert, 2004; Palloff & Pratt, 2001). In accordance with this thinking, Garrison, Anderson, and Archer (2004) believe that successful online learning occurs when a community of inquiry reflecting a social, cognitive and teaching presence is constructed.

As identified by Quinsee and Hurst (2005), some view the crucial element of education as being dialogue. Thus, the communication tools inherent in many of the Internet-based distance education course management systems (e.g., Blackboard, WebCT) are seen as appropriate tools for achieving effective learning events. While there is currently a dearth of research into individual distance education learning styles and corresponding design requirements (Koc, 2005), an effective strategy may be to maximise as many as possible of the dialogue styles from the options designed in the communication system being used. Thus, if a factor in distance education student attrition is attributable to a lack of dialogue (e.g., shovelware), then the introduction of a greater social, cognitive and teaching presence might influence attrition and relatedly overall grade attainment (Gallie, 2005). Following this line of reasoning, this paper compares the attrition and overall grade attainment of students taking an introductory university course in the first year of its offering (following a shovelware format) with the second year of offering where greater interaction and facilitation were built into the delivery design.

Course description

The overall goal of the course was to provide first year university students with an introduction to occupational health and safety. For the majority of students, this was their first term at university and their first distance education course. Students comprised approximately 50% each of school leavers and mature-age, employed Australians.

The first time that the course was offered it was conducted in the following manner. A surface mailed Course Profile was sent to each registered student

outlining the course schedule (date by topic) and accompanying reference material. Lectures were posted on an asynchronous WebCT platform and consisted of the same PowerPoint presentations employed in the concurrently conducted face-to-face offering. Lectures were posted each week and remained active for the duration of the term. Students were encouraged to contact the lecturer via e-mail or telephone on an individualised basis. Return contact was made within approximately 24 hours. Thus, the distance education version of the course was basically the same as the face-to-face offering, except that a community of inquiry constituting a social and cognitive teaching presence was neither enabled nor facilitated online.

In the second year of the course offering, Blackboard replaced WebCT. The university-chosen Blackboard options now provided greater dialogue possibilities that were used to introduce a greater social/cognitive teaching presence online. As such, the course was changed in the following ways:

The shift from teacher to student-centred responsibilities

While the basic Course Profile remained the same, a new administration-related emphasis now included the message that distance education delivery was more demanding than in-class and required that students be able to work on their own, have good time management skills and be prepared to read material which required that they think about, synthesise and integrate material. Explicit statements now included the need for prerequisite computer skills and dependable access to an Internet capable Pentium computer with PowerPoint and word processing capability. Emphasis was also placed on encouraging students to access their university-based educational support network such as the helpdesk for computer and information technology support, the library for information resource assistance, and student services for study/counselling/time management issues. The Course Profile also told students that they were expected to log into the course site at least once a week.

Active one way teacher-student communication

On the first day of term, an e-mail was sent on the Blackboard platform via the “All course participants” option to alert participants that the course had officially started. This “Welcome to the course” letter specified important information of an administrative nature. Previous experience had shown that many students registered for the course months in advance and, because of busy lifestyles, often failed to remember the course start date. This e-mail also operated as an information back-up for students who had not received their surface-mailed Course Profile or who had moved in the interim. As well, previous experience had suggested that many students did not read their Course Profiles and the same message sent via e-mail enabled a re-emphasis on information deemed important for ensuring course success.

Blackboard platformed e-mails were also sent at course anniversary dates where students in year one had been observed to lapse out of the course—specifically after scheduled vacations and before upcoming assessment due dates. Thus, periodic e-mails sent at these logical anniversary dates in year two were prompts to ongoing course milestones.

Student initiated teacher communication/dialogue

Lecture material content and presentation format remained similar in years one and two (although information was updated). The significant change to lectures in year two was that they were now posted for a 10 day period. The purpose of this administrative change was two-fold. In the first year many students left much of

their course study to the last few weeks. Posting material for 10 days replaced the face-to-face classroom cueing of keeping up with lectures. Secondly, it meant that students who were having difficulty keeping up had to contact the instructor for outdated lectures, thus providing an opportunity for the instructor to determine if other assistance might be required. This change provided an effective and efficient method for encouraging student-initiated interaction on an as-needed basis. It also implicitly facilitated a paradigm shift to student-centred responsibility for their learning experience.

Active student-teacher and student-student interaction

A second communication strategy used was the introduction of a minor assessment piece that required students to visit key Blackboard sites deemed pre-requisite to course success (e.g., Announcements, Course Material, Assessment). At the end students were required to post a simple message in the Discussion board stating their name, the geographical location in which they resided, and previous experience/expectations for the course by week two of the 12 week term. It had been noticed in year one that many students did not enter the Blackboard system until well after the course had begun. Follow-up with these students often revealed a reluctance to enter the system owing to a fear of the technology. Introducing an activity for a small percentage of marks early in the course encouraged students to face the ‘IT demon’ earlier, so that they could then focus on course content. Support from the lecturer and helpdesk acted to facilitate a positive and successful online experience. This activity also encouraged student-student and student-teacher interaction as some chose to comment on their common themes and interests.

Active student-student interaction

A “Study Buddy” forum board encouraging students to form their own study groups was established. Earlier course offerings had shown that students grappled with the online written format and missed the traditional, face-to-face, group verbal interaction of traditional course delivery. Thus, students in similar geographical locations were able to meet at self-determined locations. This activity also sent an implicit message to students that it was all right to interact with one another rather than just with the course lecturer.

Cognitive teaching

In year two “Thought Questions” were posted after each week’s lecture on the discussion board. Each question was designed to encourage course participants to think about, integrate and synthesise course content. This was an open discussion forum between students and lecturer¹.

Finally a voluntary course survey was initiated in year two so that participants could provide ongoing feedback regarding how they were finding the course (e.g., comment on what was working and not working for them). This feedback was managed by the Blackboard survey option and allowed the lecturer to make ongoing changes that were conducive to encouraging student success.

Assessments were conducted on-line and this remained similar in years one and two.

¹ In subsequent years this activity was extended to asking students to pose their own thought questions for the rest of the class to answer, thereby extending the cognitive agenda.

Findings

Table 1 provides a breakdown of students in years one and two by gender and retention status at weeks one and 12 of the course.

Table 1: Student gender and attrition

		Student Retention		% Attrition (Week 1–12)
		Week 1 (n)	Week 12 (n)	
Year one	Male	43	21	51.2%
	Female	33	21	36.0%
	Total	76	42	44.8
Year two	Male	66	50	24.0%
	Female	54	50	7.4%
	Total	120	100	16.7

Chi-square analysis indicated no statistically significant differences in the proportion of males to females overall (Chi = 2.94, df = 1, p = .086) nor in year one (Chi = 1.32, df = 1, p = .26) or year two (Chi = 1.20 df = 1, p = .27). Thus, if there were gender-based influences on attrition as has been suggested by other researchers (Dille & Mezack, 1991; Schlosser & Anderson, 1994; Schrum & Hong, 2002), the effects should be equitable across years one and two of the course offerings.

Closer inspection of Table 1 shows an overall attrition of 44.8% of students in year one and 16.7 % in year two. Chi-square analysis indicates that attrition rates are statistically significant (Chi = 39.51, df = 1, p = .000), with year two being significantly lower than year one (Chi = 56.03, df = 1, p = .000).

Table 2: Student age by course progress

		Average student age at:		
		Week 1	Week 12	Withdrawn
Year one	Male	32.5	33.3	29.7
	Female	26.5	26.9	24.5
	Total	29.8	30.1	27.8
Year two	Male	30.4	30.1	31.7
	Female	27.2	27.1	27.8
	Total	28.9	28.59	30.9

As seen in Table 2, consideration of student age revealed no statistically significant differences between years one and two students overall, or between those remaining in the course at weeks one or 12. This suggests that if age has an influence on attrition, as has been reported elsewhere, it is unlikely to be exerting an influence as student ages across conditions are not statistically different.²

² Dille and Mezack (1991) have suggested that older students may be more successful in their coursework as they value their time and money differently from younger students.

Table 3: Grade by year breakdown of student performance

	Distinction+ (100-75%)	Credit (74-65%)	Pass (64-50%)	Fail (49-0%)
Year 1	n = 18 (23.7%)	n = 14 (18.4%)	n = 10 (13.1%)	n = 34 (44.7%)
Year 2	n = 24 (20%)	n = 48 (40%)	n = 28 (23.3%)	n = 20 (17%)

Table 3 shows a breakdown of student grades based on final grade standing. Chi-square analysis showed a statistically significant difference between years one and two, with year two outperforming year one's performance (Chi = 22.93, df = 9, p = .01). Proportionately more students received pass or higher grades in year two (83.3%) than in year one (55.2%). Of particular interest is the almost doubling in the percentage of students receiving credit and pass grades in year two and a decline in the percentage of students failing the course.

It should be noted that achievement in the distinction grade range remained similar across years one and two of the course offering. As established elsewhere, students receiving distinctions tended to be high academic achievers in their other coursework while those in the pass/fail range had a more chequered academic history.

Conclusions

The findings reported here provide early evidence that increasing the amount of online interaction and the number of opportunities for student activity, discussion and feedback may have significant effects on student retention. While these findings need to be confirmed in other settings, they lend support for research suggesting that social interaction may be the key to discouraging student departure (Berger & Lyon, 2005). While the research method employed here does not enable a determination of the exact course changes that most influenced student retention, the majority of survey respondents (95%) said that periodic e-mails, the discussion board and time-limited lecture postings helped to keep them focused on completing the course. Subsequent feedback from more experienced distance education students has identified online student-lecturer and student-student discussions on professional issues and prompt feedback/postings to be important in keeping them educationally invested in the course.

An issue that is related to the finding of increased student retention is the elevation in grade scores (credit/pass range) obtained in year two of the course offering. As discussed by Perry and Edwards (2005), little evidence exists currently regarding what constitutes effective online teaching. Others have suggested that since people process and represent knowledge in different ways this must be taken into consideration when developing distance education curriculum (Koc, 2005). It does seem clear that students require some structure and regular check-in points and coursework deadlines to ensure their success (Quinsee & Hurst, 2005). This introduction in the second year of the course offering (e.g., greater administrative structure, time-limited lecture postings and course e-mails) may have assisted those students in the low pass/fail range more than those who tend towards higher academic performance. For example, students with meticulous or methodical approaches to learning may do well almost despite the way that a distance education course is designed. By contrast, those students who think and respond

quickly to stimuli may have more challenges in an unstructured distance education medium. For example, the mainly written communication medium requires an ability to sort through the material on one's own unassisted. As well, the distance education medium requires thoughtfully composed responses lest the fullness of the intended response be missed or misinterpreted (as might be the case with other postings if the context is not facilitated/guided by the lecturer and augmented through student online discussions). Finally students who lack the traditional academic skill sets may require more individualised assistance from the instructor. Thus, setting up a system where students were encouraged and required to contact the instructor as they needed to do so complemented the more student-centred learning paradigm resonant with distance education coursework (Gallie & Joubert, 2004).

As this lecturer gains more experience with online delivery, so too comes the increasing awareness that course design may need to differ depending on the subject matter, educational goals and student audience (e.g., amount of student online experience, etc.). As lecturer expertise increases, we should also anticipate similar growth in our students. I have already received responses to the survey question "What could be done to improve this course?" that show a growing acceptance of the shift in learning paradigm characterised in distance education formats (Gallie & Joubert, 2004). Many students are showing increased readiness to embrace more sophisticated technology and it is those who showed the most initial resistance who often comprise this group.

Finally it must be recognised that instructors are responsible for following current best practices so that first-time distance education students are not forever lost as an attrition statistic. However, it is also imperative that students assess their own motivation and personal life timing in order to engage in distance education. Together this is a powerful combination for ensuring student retention.

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