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The Impact of Student Retention Strategies: An Empirical Study

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Abstract: A major concern for institutions and instructors is the high dropout rate of students in online courses. This study investigated the impact of student retention strategies on retention rates in an online information systems course. A treatment group exposed to retention strategies related to student engagement, learning communities, student services and learner centred environments was compared with a control group. Results suggested that retention strategies may not impact retention rates. This is important as faculty are routinely encouraged to implement similar strategies in online course design and delivery.

Keywords: distance learning; management in education; online education; retention strategies; engagement strategies.

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1   Introduction

In the fall of 2007, about 4 million students were taking at least one online course and this number has continued to rise. According to the 2008 Sloan Survey of Online Learning, US enrolment in online learning has risen by 12% from the previous year (Allen and Seaman, 2008). However, despite the focused attention on appropriate design and delivery of online courses, retention continues to be one of the largest challenges that online educators face (Clay et al., 2008). Student dropout rates for online courses are 15–20% higher than traditional face-to-face courses (Angelino et al., 2007). This has a negative impact on the learning institution, the faculty and most importantly the student. The institution is affected in terms of reduced enrolment capacity and under-utilised resources. Faculty are comparatively spending more time in the online course environment and as a result, these instructors are progressing fewer students (Li and Irby, 2008). Students realise a delay in graduation, lost tuition and feelings of inadequacy for not completing the class (Tinto, 2006).

Retention strategies in higher education are not a new concept in educational research. Many different strategies are available for review, yet few document actual retention strategies and their measures of success. The faculty in the Online Bachelor's in Business Administration (BBA) programme in the Coles College of Business at Kennesaw State University developed a systematic approach for improving retention based on a framework contained in the Angelino et al. (2007) study. Strategies were devised related to:

- student integration and engagement

- learner-centred approach

- learning communities

- online learner support.

These strategies were designed and executed in "Business Information Systems and Communication" (BISM 2100) during the spring 2009 semester. A review of the literature related to each of these strategies follows.

2 Literature review

The online learning literature suggests a large number of retention strategies. This literature review uses the conceptual framework presented by Angelino et al. (2007) and is centred on four main strategies to help student retention. These strategies focused on the learner-centred approach, student integration and engagement, learning communities and online learner support.

Student integration and engagement uses retention activities designed to increase interaction and communication with students. Whether in a traditional classroom or a virtual one, student engagement is essential to the students' progress and success (Allen and Seaman, 2008). It is suggested that student interaction and engagement encourages students' motivation and introduces a positive perception of the course (Topper, 2007). Examples of activities that would fall under student integration and engagement strategies include faculty-initiated phone calls (Ali and Leeds, 2009; Towles et al., 1993), informal online chats with students (Carnevale, 2000) and pre-course orientations (Wojciechowski and Palmer, 2005). These activities are expected to result in a greater sense of belonging and less likelihood of withdrawal from the course. Ali and Leeds (2009) suggested face-to-face orientation or a similar approach be added as an important strategy for integration. Similarly, Clay et al. (2008) used phone calls as a retention strategy. The various strategies and activities require a solid effort from online teaching faculty. Much of the literature focuses on the role of faculty in the engagement and integration of students into any class. Shepherd (2001) acknowledged the role of motivation as a key factor in a student's commitment to a class. In an online environment, faculty presence is even more crucial to facilitate learning and create a higher-quality learning experience (Roby and Hampikian, 2002). Morris and Finnegan (2008) emphasised that faculty's presence and active participation influence student's participation positively. Scagnoli (2001) suggested that online faculty employ some type of orientation to familiarise the students with the course's material, requirements, and expectations. Artino (2008) noted that faculty presence should motivate the learners to participate and that this will in turn encourage the learners to self-regulate their behaviour. Student-to-student relationship plays another key role in that motivation (Luppicini, 2007).

The *learner-centred approach* is designed to change course design from a 'teacher-centred, instructive approach' to a constructivist approach where students are involved in shaping the learning opportunities for the class (Angelino et al., 2007).

This approach relies on more student input for the development of class objectives. Chou (2004) agreed that that learner-centred objectives and activities enhance the learning process, and thus, benefit the learners. Learner-centred instruction aims to empower the learners by having them own the learning experience through clear learning objectives and obtainable learning outcomes (Dabbagh and Kitsantas, 2004; Maki and Maki, 2003). The main focus should be on what the student is learning (Weimer, 2002). Hence, all activities associated with online learning should be focused to ensure that the learner is at the heart of the process. Accordingly, Weaver et al. (2005) and Twigg (2003) stressed the importance of organised course content as the main ingredient for a positive course experience. This should motivate the online course faculty and designers to develop strategies that address the different learning styles of students (McCombs and Vakili, 2005).

Learning communities are designed to allow students to share different perspectives and learn from each other in a collaborative environment. McLoughlin and Maynard (2009) found that online interaction via discussion can produce higher order thinking represented in the better comprehension, analysis and application of knowledge. Communication in online learning contexts is more challenging than in the traditional classroom. Thus the different relationships presented by learning communities become vital to the success of the learning experience (Wise et al., 2009). Learner behaviour in online learning has great implication to the student-to-student relationship (Hewitt, 2005). Learning communities are expected to positively affect feelings of "physical separation, feeling of isolation, lack of support", and disconnection by providing students with a sense of membership (Angelino et al., 2007; Rovai, 2002). In reviewing the online learning literature, there has been much research on using learning communities (Goldfine, 2006; Hegler, 2004; Laufgraben and Shapiro, 2004; Smith et al., 2004; Stinson, 2004). Yazedjian et al. (2007) pointed out that the social aspect of college life, including memberships in groups and clubs, can act as an effective driver of student success. Beaulieu and Williams (2006) and Ancar et al. (2006) acknowledged the benefits of learning communities in providing cosy environments for student collaboration where personal relationships are a key component. In turn, these relationships provide a safe setting where the learners can exchange ideas, knowledge and enquiries and teach and learn from peers. Fried (2007) echoed similar sentiments by portraying learning communities as havens for their respective learners to experience cognitive, emotional, and behavioural transformation while Reilly and Mcbrearty (2007) added that learning communities provide opportunities for learners' self-direction and self-management.

Online learner support provides the necessary information to students to fulfil their needs related to their educational activities. At the operational level, online learner support may include educational counselling, technical support, library services, study skills sessions, and many other tools (Angelino et al., 2007). While these services are important to the success of all students, they are particularly important in the online environment (Howell and Wilcken, 2005). As learning communities provide emotional and cognitive support, learner services afford logistical support including admission, advising, registration, tutoring, library, disabled student services, and technical support. Levy (2003) argued that as education evolves into online learning, the common student campus-based services should also evolve to respond to the needs of the online learners. Anderson and Elloumi (2004) used the analogy of a value-chain to describe the process

of learner support in online learning. They see the process from admission through completion of a course to be one unit of logistics and production. Chambers (2004) saw the learning experience to be a larger process that includes recruitment, enrolment, induction, participation, graduation and beyond. Ludwig-Hardman and Dunlap (2003) believed that such services minimise the online learner's feeling of isolation, and hence, strengthen the learner's relationship with the institution. Although students do not take advantage of all services offered (LaPadula, 2003; Hirt et al., 2003), these learner institution relationships have a major influence on the learner's engagement and retention (McCracken, 2006).

3 Background

BISM 2100 is a pre-requisite course for entrance into the College of Business for both the traditional and the online programmes. It is part of the lower division core group of courses and must be completed successfully with a 'C' or better by all business majors. The course requires a basic proficiency in MS Office applications and is typically taken by second-year undergraduates. Retention rates in BISM 2100 online have been historically lower when compared with other 2000 level online courses in the BBA programme, using this course would allow the researchers to examine the impact of change where the impact would be the greatest. The retention rates of students enrolled in BISM 2100 online are similar to those of other technical and quantitative courses. Examples include 2000 level Accounting and Economics courses. Historical data is provided in Table 1.

Table 1 Average course retention for online BBA courses

	BISM 2100 (%)	2000 level courses (%)	All courses (%)
Fall 2007	72	76	87
Spring 2008	64	80	85
Summer 2008	68	81	90
Fall 2008	55	74	85

BISM 2100 is one of 24 business courses required for completion of the BBA degree (Coles College). All enrolled Kennesaw State University students in good academic standing may enrol for online courses. Students wishing to complete all of their courses online may opt to enrol as Web Learners. Students enrolled as Web Learners enjoy priority registration for online courses, but do not have the option to register for face-to-face courses. Currently only 5% of students taking online courses are enrolled as Web Learners. Online course retention and success may be a barrier to an increase in the number of Web Learners, and resultantly enrolment growth at a programme level.

BISM 2100 was designed to facilitate learning in an online environment; it was peer reviewed and certified according to Quality Matters® guidelines. The Quality Matters Framework is a nationally recognised peer-based approach based on set of review criteria that focuses on eight standards:

- Course overview and introductions

- Learning objectives

- Assessment and measurement

- Resources and materials

- Learner engagement

- Course technology

- Learner support

- Accessibility (Quality Matters).

The course was not redesigned prior to the experiment. It was designed to mimic the workload of the face-to-face course. Each unit of credit requires two to three hours of outside class work per week. Since there are not physical meetings, the in-class equivalent is also expected out of class. This is a rigorous course with programme assessed learning objectives in technology, critical thinking and interaction. There are also applications based skill sets in MS Office related products, webpage design and publishing, and file management embedded in BISM 2100. These are required and expected by downstream faculty.

4   The retention strategy experiment

This experiment was designed to provide information about pedagogical policies and practices that improve retention of students in online classes. The goal of the researchers was to determine methods that would enhance the student's learning experience and increase the likelihood of the student completing the course successfully. Angelino et al. (2007) study finds that engaging students early and keeping them engaged is the primary factor in addressing attrition. Instructors need to be adequately prepared with effective teaching tools and strategies for engaging students and fostering student persistence. However, the types of strategies and their components are often in question. Before any retention strategies can be implemented effectively, they need to be tested and compared with each other as a way to identify best practices.

A list of the strategies used in this study is shown in Table 2 along with a description of the intended benefit. As illustrated, students in the treatment (TG) and the control groups (CG) were provided a base-line retention strategy within each of the four areas. These were pre-existing student retention strategies that were retained as part of the BISM course design. To create the experimental design, the treatment group received a more comprehensive set of activities within each of the four strategies.

The experiment tested the following hypothesis:

Ho: The retention strategies implemented in the treatment group will have no impact on student retention (there will be no difference in retention rates for students in the treatment group vs. students in the control group).

Ha: The retention rates for students in the treatment group will be greater than retention rates for students in the control group.

Table 2   Retention strategies

Retention strategy	Description
Student integration and engagement	
1 Video orientation (CG and TG)	Personalises the course experience
2 Welcome e-mail (TG)	Establishes initial contact with the student Early contact helps student become part of the learning community and establishes course expectations
3 Personal phone call (TG)	Re-emphasises the course start date
	Removes the impression of anonymity
4 E-mail course contract (TG)	Establishes the expectations the instructor has for the student
5 Course/syllabus quiz (TG)	Fosters student ownership of course policies and expectations. Requires students review course policies and expectations
Online student services	
6 Start here document (CG and TG)	Gives student a focus for beginning the online course work
7 Welcome to student services activity (TG)	Provides information on resources and assistance that students may need. Brings students to the resources to complete activity to anchor awareness. Provides the same services and support resources that are available to the campus community to the online community
Learner-centred approach	
8 Post-introduction (CG and TG)	Starts communication between students and instructor as soon as possible. Allows students and instructor to learn more about each other
9 Ice breaker (TG)	Creates a sharing environment personal connection
Learning communities	
10 Team projects (CG and TG)	Helps to bridge the physical distance between students
11 Small group discussions (TG)	Encourages student-to-student interaction and support. Helps develop a sense of community

5   Research design

In spring 2009, four online sections of BISM 2100 were offered. Two instructors, who had previously taught this online course, were each assigned two classes. One class from each instructor was designated as control and a treatment group; the students were not aware of this differentiation. The two control groups and two treatment groups were combined and team taught (Figure 1). A total of 162 students participated in the experiment.

Figure 1   Control and treatment groups
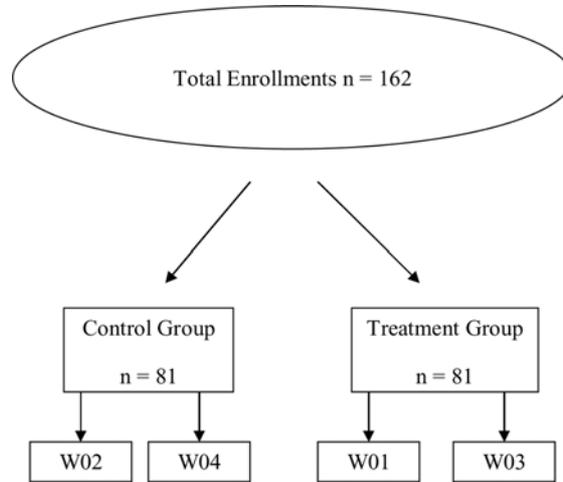
In an effort to personalise the course, engage the students and identify key areas in the course architecture, the researchers utilised a series of retention strategies based on the Angelino et al. (2007) study in all classes. A series of seven additional strategies was created and deployed in the Treatment Group. As with any study that involves students, care was taken to ensure that sufficient support was given to the control group and that researchers did not inadvertently do anything to discourage higher retention rates within that group. Every effort was made to maintain consistency between groups, and to isolate the retention strategies as standalone activities in the treatment group. Students were introduced to both instructors and asked to address all communications to both instructors. One primary grader was established per assignment to provide scoring consistency. The nature of the course requires a relatively high number of graded assignments. Therefore, it was important that students within the treatment group perceived the additional activities as supportive measures rather than as onerous activities. The retention strategies assigned to the treatment group are also shown in Table 2. Table 3 shows the order in which the retention strategies were implemented and the number of students participated in each.

Table 3   Retention strategy participation (TG) in sequence

	Participating students	*Percent of enrolled students* (%)
Email reply	56	69.14
Course contract	61	75.31
Personal phone call	48	59.26
Learning community	72	88.89
Syllabus quiz	72	88.89
Student services	51	62.96
Ice breaker	46	56.79
All treatment group retention strategies	15	18.52

6　Data collection

Two separate survey tools were used as the primary data collection instruments. The surveys were administered to all participants via SurveyMonkey.com. Students enrolled in BISM 2100 for the spring semester of 2009 were sent an e-mail which included an introduction of the study, the anticipated time required to complete the survey (15–20 min), an assurance of confidentiality, and the URL link to the website hosting the survey. Of the 162 students enrolled in the four sections of the course, a total of 149 participated in Time 1 data collection, 72 in the treatment group and 77 in the control group.

The first survey instrument (Time 1) was released to the students immediately after Late Registration for classes ended. The survey at Time 1 was the same for both control and treatment groups and was used to gather information on demographics and the online experience of the students. Specific attention was given to assessing student expectations of the course and online learning in general. On the basis of past research that focused on student expectations regarding the course and the instructor (Cooke and Sims, 1995), 18 questions were used to assess initial expectations the students had about the online class including the last question, "I am confident that I will remain in this class". These questions were rated using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). A complete list of survey questions for Time 1 is listed in Appendix A.

The second survey (Time 2) was released to the control and treatment groups after the last day to withdraw from the course without academic penalty. The survey was administered at this point in the term, rather than at the end of the term, to capture students' impressions close to their decision to stay in the course and to prevent bias in responses due to subsequent workloads and potential grades. To compare demographics from Time 2 to Time 1, the same demographic information was collected at Time 2. A total of 47 students in the treatment group and 47 in the control group completed the Time 2 survey. In the treatment group, 43 of the 47 respondents also completed the Time 1 survey while 46 out of the 47 students in the control group completed both surveys. The Time 2 survey was used to measure student satisfaction of various aspects of the course including course content, instructor preparedness and availability, student's experience with the course and overall effectiveness of the course. These questions were rated using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). To gain a better understanding of withdrawal cognitions that both control and treatment groups may have had throughout the semester, the following questions were asked: If you considered dropping this class, why did you want to drop it? If you considered dropping this class, why did you stay? Finally, the Treatment Group had a modified survey that also included questions related to the various online retention strategies used (refer to Table 2 for these strategies). The effectiveness and impact of each retention strategy on the student's retention in the class was assessed using a 5-point Likert scale. A complete list of survey questions for Time 2 are listed in Appendix A.

7   Results

7.1   Student participation log

During the opening weeks of the term, participation logs and call records were maintained by the researchers. As participants replied to welcome email, course contract requests, instructor-initiated phone calls and other calls for participation, the participation was logged and notes were kept. The results presented in Table 3 were derived from this data. In addition, anecdotal information was collected during this process via student e-mails. Several students sent unsolicited emails noting appreciation for instructor effort and outreach. Comments ranged from "Wow! Thanks for the call!" to "I think that both of you are putting more work into this class than I have ever seen in an online course. I even got a call from you, which I have never received [sic] before from a Professor".

7.2   Validation of sampling process

Data collected in the initial survey (Time 1) were used to validate the sampling process. Mann-Whitney U tests of goodness of fit were conducted to verify that students in the treatment and control groups were representative of the overall student population in terms of the variables gender, age, class standing (freshman, sophomore, etc.) and ethnicity. Test results indicate there was not a statistically significant difference in the distribution of students for the treatment group vs. the overall student population or for the control group vs. the overall student population (all p-values > 0.10). Likewise, there was no significant difference between the control and treatment groups for these same variables. Other questions are asked pertaining to students' previous experiences with online classes, self-reported GPA and self-rating as a computer-user. The only significant difference in the treatment group vs. the control group occurred for the survey question "If you have taken online classes in the past, would you agree/disagree that your experience with the online class has been favourable?" Students in the treatment group were more likely to select 'agree' or 'strongly agree' (p-value = 0.0126). A summary of the self-reported student characteristics collected in the surveys and their p-values is provided in Appendix C.

Of particular interest were the response rates to 18 questions related to three dimensions: the students' impressions of the course, perceptions of their ability to successfully complete the course and expectations of their performance in the course. The response rates to most of these Likert-scale questions were not significantly different for the treatment vs. control group. It was found that the treatment group was slightly more likely to agree they actively participated in previous online classes (p-value = 0.0317) and that they believe interaction between students and the instructor is key for a successful online experience (p-value = 0.098.) This indicates little or no significant bias between the two groups in terms of these three dimensions.

7.3   Retention statistics

Final enrolment statistics are presented in Table 4. For both groups, 22 students withdrew from the course before the last day to withdraw without academic penalty, leaving 59 enrolled students. Students who remained enrolled but never participated in the course were considered to be 'withdrawn' for purposes of the study. There were two such

students in the treatment group and three in the control group. Thus, the final retention rate for the treatment group was 70.37% vs. 69.14% for the control group; this is not a statistically significant difference. These results suggest that the combined effect of the retention strategies was negligible. Further analysis, using the results from the Student Participation Log and Time 2 Survey, was conducted to determine if any individual strategies were more effective than others.

Table 4   Retention results

	Enrolment by Section				Totals	
	W01-TG	W02-CG	W03-TG	W04-CG	TG	CG
Enrolled after late registration	40	41	41	40	81	81
Withdrawal	10	7	12	15	22	22
Enrolled after last day W/D	30	34	29	25	59	59
Enrolled but inactive (W/F)	0	2	2	1	2	3
Total actively enrolled	30	32	27	24	57	56
Percent attrition	25%	22%	34%	40%	30%	31%
Percent retention	75%	78.05%	65.85%	60%	70.37%	69.14%

Using the student participation log data, it was possible to determine the percentage of students who participated in each retention strategy that ultimately withdrew from the course (Table 5). At first glance, it appears as if the Student Services and Ice Breaker activities were the most effective strategies. However, those were the last retention strategy activities conducted and many students had already withdrawn, so it is expected that the withdrawal rate of those participants would be lower. The most useful information from these results is that the highest percentage of withdrawals occurred within those who participated in the Personal Phone Call activity because that is also the activity with one of the lowest participation rates (Table 3). This particular retention strategy activity is time-intensive for the instructor. Because of voice mail and caller ID, it is difficult to actually make contact with a student via telephone and students are reluctant to return calls, even to their professors.

Table 5   Percentage of student participants who withdrew

Treatment	Percentage of withdrawal (%)
Reply received	26.79
Course contract	21.31
Welcome phone call	33.33
Joined learning community	26.39
Syllabus quiz	26.39
Student services activity	17.65
Ice breaker	6.52
All treatments	33.33

7.4   Results of time 2 survey

In the Time 2 survey, students were asked a series of questions related to their impressions of the structure and layout of the course, the instructor and their personal contributions to the course, in addition to the same demographic questions posed in the Time 1 survey. Comparative analysis revealed no significant differences in age, gender, ethnicity, class standing and GPA between the Time 1 and Time 2 responses or between the control and treatment group responses for Time 2 (p-values > 0.05).

For the questions related to students' impressions, the only significant differences found between the control group and treatment group were for the items "The objectives for this course were clear" (p-value = 0.0436) and "The material was easily accessible from WebCT or some other online source" (p-value = 0.0171). For both items, the control group was more likely to agree. It is unclear whether these differences are related to the engagement strategies employed in the treatment group course sections; thus, this would be of interest to determine in future studies. In summary, after the final drop-date, the control and treatment groups are still compatible.

Students in the treatment group were asked to rate each retention strategy activity in terms of its effectiveness in engaging them in the course and again in terms of its impact on their satisfaction with this online class. The average ratings for these two questions are shown in Figure 2. Although the "course/syllabus quiz at the beginning of the class" was rated slightly higher for both satisfaction and effectiveness, the retention strategy activities were rated fairly consistently by the students.

Two open-ended questions were included in the Time 2 Survey:

- "if you considered dropping this class, why did you want to drop it"

- "if you considered dropping this class, why did you stay?"

The answers to both questions were essentially the same for the treatment and control groups. The overwhelming reason for consideration of dropping the course was the required workload. Reasons students gave for staying in the course were that the course is required and they just need to get it done, a reluctance to withdraw from classes, student missed the drop date, student enjoyed the class and grade was too high to give up. The final item of the Time 2 survey asked students to rate the overall effectiveness of the course. Again, there was not a significant difference in the responses from the control and treatment groups.

Figure 2   Student effectiveness and satisfaction

7.5 Follow-up survey and e-mail

In addition to the Time 1 and Time 2 surveys, a follow-up email and short survey were sent to those students who withdrew from the class in between Time 1 and Time 2 to better understand the students' reasons for withdrawal from the course. Of the 44 students who officially withdrew from the class, 18 responded and provided "Too much work" and "The class was not what I expected" as the top two reasons for their withdrawal. Given a low response rate to the follow-up survey by students who withdrew, phone calls were made by faculty on the research team who did not teach this course. The purpose of the phone calls was to ascertain reasons for withdrawal and to encourage students to complete the follow-up survey. In the process of verifying student phone numbers within the university student information database, other information about these students that could be relevant to their decision to withdraw was obtained. For example, many of the students who withdrew, also withdrew from all of their online courses, started with a heavy course load or did not need this course for their major. The information gathered during this follow-up provides insight for future research.

8 Conclusions and future research

In summary, the retention strategies implemented in this study did not have a statistically significant impact on student retention rates. That is, those students in the treatment group who were exposed to a variety of retention strategies were just as likely to withdraw from class as those students in the control group who did not receive the additional retention activities. A replication of this empirical study is currently underway for confirmatory purposes. As this is only one data set, using multiple sections of the same course, we are cautious in concluding that these retention strategies are not at all effective. However, the findings highlight the importance of empirically testing these strategies prior to acceptance and inclusion in online courses.

Findings from this study coupled with anecdotal evidence from the authors' various online class experiences, also provide some suggestions for future research. After results indicated that the retention strategies themselves had little to no impact on a student's decision to remain in the course, a closer look at the characteristics of the students suggests that the students' individual differences might have a significant impact on retention rates. In other words, if enrolled students do not have proper learner characteristics to succeed in an online environment, then it may not matter whether the student receives a phone call or not. Indeed, some of the anecdotal evidence indicates, but does not substantiate, that students with lower GPAs have a higher tendency to withdraw from the course or become inactive and fail; students for whom English is not their native language struggle more with online courses. There may be some individual differences such as achievement-orientation or strong time management skills that enable a student to have a better online experience than other students.

The ultimate goal is to determine characteristics of successful as well as unsuccessful online learners. Therefore, more research is needed to sort out confounding academic (GPA, previous online experience) and demographic factors that may be related to retention and success of students in online courses. This information can help students make better decisions regarding the choice to enrol in online courses and the number of courses that is reasonable to attempt per term. It can be useful for instructors in

developing learning and motivational activities and for advisers in providing better quality advice and guidance for online students. Administrators should use the information to set policies to maximise the student's potential for success, e.g. minimum GPA requirement or special permission for enrolment in online courses, maximum number of enrolled courses, etc. An investigation into the impact of learner characteristics in online learning is slated for a future study.

Additionally, we found that most students at the beginning of class reported that they understood the course expectations and felt they were appropriate. However, when looking at those students who withdrew, the major reason given was the intense workload for the class. Many of these students who withdrew appeared to underestimate the extent of the work required for a given course load. Workload is also a consistent reason given for online course dissatisfaction (Janes, 2002). Students cite overwhelming amounts of reading from e-mail messages, course assignments and online discussion (Dick, 2005). Thus, managing students' prior expectations of the workload required for online courses is a factor to consider separate from these retention strategies. This is an area that deserves more attention and is recommended for future research.

Finally, future research should also include modifications to the chosen retention strategies. Rather than merely being placed in learning communities, students can be make use of richer communication vehicles such as net meetings to increase interaction and provide some face-to-face exposure to other members in the community. In addition, having these learning communities established at the start of the semester might allow more time for such strategies to have an actual impact on student retention. The current study selected sample activities within each of the four categories of retention strategies. However, there are other activities that might prove more fruitful in increasing student engagement and should also be tested.

As student enrolment into online classes is expected to continue to grow, finding the key factors that will promote student engagement and retention is a goal we share as it has impacts on the learning institution, the faculty and most importantly the student. The institution is impacted in terms of faculty allocations and support resources. Faculty are spending more time in the online course environment yet progressing fewer students (Li and Irby, 2008). Students lose tuition money, delay graduation and experience feelings of inadequacy for not completing the class (Tinto, 2006). Improving retention is a shared priority for many institutions and this research may be helpful in more strategically directing those efforts to yield the greatest benefit for all parties.

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Appendix A

Time 1 Survey Questions – Control Group and Treatment Group (p-values represent the significance of tests of comparisons for responses from control vs. treatment groups)

1   What is your age? (<20, 20–24, 25–29, 30–39, 40–49, 50–59, $\geq$ 60) (0.1422)

2   What is your gender? (Male or Female) (0.8222)

3   What is your ethnic background? (Asian/Pacific Islander, Black/African American, Hispanic, White/Caucasian, Native American, Multiracial, Other) (0.5989)

4   What is your status at KSU? (Freshman, Sophomore, Junior, Senior, Graduate, Other)

5   What is your GPA? (Numerical value) (0.9816)

6   Which of the following is closest to your major? (Business, Education, Fine Arts, Liberal Arts, Medical-Health, Science/Math, Social Sciences) (0.1179)

7   Is this a required class? (Yes or No) (0.1602)

8   If you answered NO to Q8, why did you take this class?

9   How many online classes have you taken at KSU prior to this class? (0,1,2,3,4,5 or more) (0.2451)

10 How many online classes are you taking this semester? (0, 1, 2, 3, 4, 5, other) (0.7458)

11 If you have taken online classes in the past, would you agree/disagree that your experience with online classes has been favourable? (Strongly Disagree, Disagree, Neither Agree or Disagree, Agree, Strongly Agree) (0.0126)

12 How would you rate yourself as a computer-user? (Poor, Beginner, Average, Advanced, Other) (0.1319)

13 To what degree do your agree/disagree with the following statements: (Strongly Disagree, Disagree, Neither Agree or Disagree, Agree, Strongly Agree)

    a   I am satisfied with the layout of this online class. (0.2235)

    b   The syllabus and the schedule are easily accessible and clear. (0.2103)

    c   The expectations of this online class are reasonable. (0.1624)

    d   This class seems to be designed to fit diverse learning styles. (0.2966)

e   I feel confident that I will be able to participate in the online discussions. (0.3458)

f   In the past, I have actively participated in my online classes. (0.0317)

g   It is easy for me to access study materials and support off-campus. (0.9896)

h   I rarely have problems with technology. (0.6482)

i   I have a place in my home or at work near my computer that can be used to work on this class. (0.9324)

j   I have blocks of time that will be uninterrupted in which I can work on my online course. (0.8009)

k   When I am asked to use technologies that are new to me such as a new piece of software, I will try them even if I feel a bit apprehensive. (0.7156)

l   I can be a self-motivated, independent learner: it isn't necessary to be in a traditional classroom environment in order to learn. (0.6895)

m   I am comfortable communicating with persons using electronic technologies such as e-mail and voice mail. (0.3817)

n   I believe that interaction between the students and the instructors is key for a successful online experience. (0.098)

o   I influence my own level of engagement in online learning because I am accountable for my learning. (0.3695)

p   I ask questions when I don't understand the material. (0.1665)

q   I take ownership for what happens in online group work. (0.5380)

r   I am confident that I will remain in this class. (0.1150)

Appendix B

Time 2 Survey Questions – Control Group and Treatment Group

1   First, we would like to know if you completed Survey 1 for this Class. (Yes or No) (CG vs TG .1733)

Questions 2–9 are repeated from the Time 1 survey. Responses for the questions 10–12 are Strongly Disagree, Disagree, Neither Disagree or Agree, Agree, Strongly Agree.

10   We would like you to select the choice that corresponds to this online course. Please rate your level of agreement with the following statements:

a   The objectives for each part of the course were clear. (0.0436)

b   The required tests, quizzes, projects, papers, and reports accurately measured my attainment of these learning objectives. (0.5202)

c   The course was well organised. (0.5780)

d   The quantity of the course material was appropriate for this class. (0.4387)

e   The threaded discussions online contributed to my learning. (0.9061)

f   The required reading and assignments contributed to my learning. (0.5167)

g   The material was easily accessible from WebCT or some other online resource. (0.0171)

11   We would like you to select the choice that corresponds to your experience with the instructor(s) for this class. Please rate your level of agreement with the following statements:

a   The instructor kept communication lines open throughout the semester. (0.6167)

b   The instructor inspired interest in the course material. (0.4796)

c   The instructor provided timely feedback. (0.7511)

d   The instructor treated students with respect. (0.6507)

e   The instructor provided opportunities for students to learn from each other. (0.5379)

f   The instructor was available and helpful. (0.9079)

12   We would like you to select the choice that corresponds to your own experience in this class. Please rate your level of agreement with the following statements:

a   I have actively participated in this online class. (0.9718)

b   My grades reflect that I have actively participated in this class. (0.1659)

c   I invested enough time and energy in the course to meet/exceed course requirements. (0.2891)

d   I made quality postings in the online discussions. (0.8270)

e   I had few problems with technology during this online class. (0.8939)

f   At some point in the semester, I have considered dropping this class. (0.4758)

13   If you considered dropping this class, why did you want to drop it? If you considered dropping this class, why did you stay?

14   Overall I would rate the effectiveness of the course as: (extremely low, low, average, high, extremely high) (0.2675)

Time 2 Survey Questions – Treatment Group Only

15   Using a scale of 1 (not at all effective) to 5 (very effective), please rate the following in terms of its effectiveness in engaging you or getting you involved in this

a   Video Orientation

b   Initial phone call from instructor

c   Instructor introduction posted online

    d   Student introductions posted online

    e   Course/Syllabus Quiz at the start of the class

    f   Assignment to groups at the start of class

    g   Group discussions throughout the semester

    h   Ice Breaker (Group Formation Discussion)

    i   Online Student Service Help

16 Using a scale of 1 (not at all) to 5 (high impact), please rate the following in terms of its impact on your satisfaction with this online class.

    a   Video Orientation

    b   Initial phone call from instructor

    c   Instructor introduction posted online

    d   Student introductions posted online

    e   Course/Syllabus Quiz at the start of the class

    f   Assignment to groups at the start of class

    g   Group discussions throughout the semester

    h   Ice Breaker (Group Formation Discussion)

    i   Online Student Service Help.

Appendix C

Characteristics of retention strategy participants

Variable	Treatment Time 1	Control Time 1	Treatment Time 2	Control Time 2
Total participants	72	77	45	47
Age				
Under 20	6.9%	23.4%	10.6%	14.9%
20–29	66.6%	55.9%	66.0%	66.0%
30–39	19.4%	14.3%	21.3%	14.9%
40–49	19.4%	6.5%	2.1%	4.3%
50–59	4.2%	0.0%	0.0%	0.0%
60 or older	1.4%	0.0%	0.0%	0.0%
Gender				
Male	33.3%	31.6%	37.0%	31.9%
Female	66.7%	68.4%	63.0%	68.1%

Appendix C (continued)

Characteristics of retention strategy participants

Variable	Treatment Time 1	Control Time 1	Treatment Time 2	Control Time 2
Total Participants	*72*	*77*	*45*	*47*
Race				
Asian	0.0%	1.3%	0.0%	0.0%
Black/African American	13.9%	27.6%	17.0%	26.1%
Hispanic	5.6%	0.0%	4.3%	0.0%
White/Caucasian	73.6%	67.1%	70.2%	71.7%
Native American	0.0%	1.3%	0.0%	2.2%
Multi-racial	2.8%	2.6%	4.3%	0.0%
Other	4.2%	0.0%	4.3%	0.0%
School status				
First year/Freshman	4.3%	6.6%	2.1%	4.3%
Second year/Sophomore	33.3%	43.4%	34.%	44.7%
Third year/Junior	46.4%	38.2%	42.6%	36.2%
Fourth year/Senior	15.9%	9.2%	14.9%	12.8%
Graduate	0.0%	2.6%	0.0%	0.0%
School major				
Business	68.1%	81.1%	70.2%	87.2%
Education	1.4%	1.4%	2.1%	2.1%
Fine Arts	2.9%	0.0%	0.0%	0.0%
Liberal Arts	1.4%	0.0%	0.0%	2.1%
Medical/Health	2.9%	1.4%	4.3%	2.1%
Science or Mathematics	1.4%	2.7%	6.4%	0.0%
Social Sciences	21.7%	13.5%	17.0%	6.4%
Required course				
Yes	83.1%	86.8%	87.2%	93.6%
No	16.9%	13.2%	12.8%	6.4%
Computer ability				
Poor	1.4%	0.0%	n/a	n/a
Beginner	0.0%	3.9%	n/a	n/a
Average	78.9%	82.9%	n/a	n/a
Advanced	19.7%	13.2%	n/a	n/a