

# An Analysis of Student Persistence in Online Education

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## ABSTRACT

*This study examines the relationship between instructional interaction and student persistence among adult students in online courses. A survey research methodology was used to examine the frequency and the method of instructional interaction in online courses, student attitudes regarding instructional interaction, and the reasons online students provide for persisting in, or withdrawing from, online courses. The results indicate that student perceptions regarding the contribution of asynchronous, discussion forum use combined with frequent use of asynchronous discussion account for 26% of the variance in course persistence rates. Consistent with the literature on adult student dropout, the findings identify additional situational and institutional barriers to persistence among students in online courses. The findings suggest that strategies to facilitate student persistence in online courses should address online instructional techniques, faculty development, technology development, and program development.*

*Keywords:* asynchronous education, asynchronous discussion, educational technology, electronic learning, online classroom, online teaching, Web-based instruction, Web-based teaching

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## INTRODUCTION

The growth and popularity of the Internet and the World Wide Web among students and faculty at institutions of higher education across the country has coincided with the expansion of online distance education programs. As institutions of higher education expand online course offerings, it is important to identify strategies that promote student participation and success in online courses and programs. One obstacle to student success in online courses is student withdrawal or dropout, a failure of students to complete a course and/or program of study. Research suggests that online courses have significantly higher dropout rates than face-to-

face courses (Carr, 2000; Levy, 2005; Simpson, 2004; Terry, 2001).

While a number of factors have been identified as contributors to student dropout, few research studies have examined the classroom factors contributing to a student's decision to withdraw from, or persist in, a course or program of study (Barefoot, 2004; Simpson, 2004; Tinto, 2002). One factor that is consistently identified as contributing to student achievement, satisfaction, and persistence in face-to-face college classrooms is interaction. A significant body of research documents the role of student and faculty interaction in supporting positive learner outcomes on the traditional college campus

(Kuh & Hu, 2001; Pascarella & Terenzini, 1991; Tinto, 2002). More recently, researchers have identified a clear relationship between faculty interaction and student perceptions of learning and student satisfaction in online courses (Jiang & Ting, 2000; Roblyer & Wiencke, 2004; Shea, Frederickson, Pickett, Pelz, & Swan, 2001; Swan et al., 2000). This study examined the impact of instructional interaction on student persistence among adult students in online courses while also examining the reasons online students provide for persisting in, or withdrawing from, online courses. Specifically, this study examined the relationship of persistence to (a) the frequency of instructional interaction, (b) the method of instructional interaction, and (c) student attitudes regarding interaction and their online course experience.

## LITERATURE REVIEW

### Relationship between Interaction and Persistence

The importance of interaction between students and teacher in supporting positive learner outcomes among campus-based undergraduate students is well-documented (Pascarella & Terenzini, 1991; Tinto, 2002). Pascarella's work distinguishes between formal (academic) interaction that occurs within the classroom and informal (social) interaction that occurs outside the classroom. Studies have found that the frequency and content of formal and informal interaction between instructors and undergraduate students in on-campus courses are correlated to gains in student achievement (Kuh & Hu, 2001; Pascarella & Terenzini, 1991), student persistence (Terenzini & Pascarella, 1980; Tinto, 1987), and degree completion (Tinto, 1987). Kuh and Hu found that as students progress from freshman to senior year, their frequency of interaction with faculty increases and shifts from social to academic or career-related interactions.

More recently, a number of researchers have examined the role of interaction in supporting positive learner outcomes among online students. Arbaugh (2005) found a strong, posi-

tive relationship between interaction in online courses and both perceived student learning and student satisfaction. Shea and his colleagues found that prompt instructor feedback and quality feedback (as reported by student respondents) are each positively related to levels of perceived student learning and satisfaction (2001). Hay, Hodgkinson, Peltier, and Drago (2004) found that instructor-to-student interaction and student-to-student interaction are each positively associated with student ratings of online course effectiveness.

Student persistence addresses a student's commitment to complete a course and program of study. Persistence is considered a positive outcome measure as compared to dropout, which is the negative equivalent outcome (Cookson, 1988; Ormond, 2003). Much of the literature on persistence and dropout draws its theoretical framework from the research conducted by Vincent Tinto. Tinto's model of college student dropout suggests that persistence is an outcome of the student's academic and social integration into that institution's community (Tinto, 1987). While Tinto's research was conducted primarily on undergraduate students in residential four-year colleges and universities, later researchers applied a similar theoretical framework to different student groups including undergraduate commuter students, (Pascarella & Chapman, 1983), undergraduate students enrolled in correspondence courses (Sweet, 1986), distant learners enrolled in video-based college (Towles, Ellis, & Spencer, 1993), and online college students (Willging & Johnson, 2004). These studies suggest that Tinto's model of college student dropout provides a framework for understanding the relationship between student-faculty interaction and student persistence in environments beyond those examined by Tinto himself.

### Interaction in Online Education

The terms interaction and interactivity are sometimes used interchangeably in the distance education literature (Anderson & Garrison, 1998; Smith & Dillon, 1999); however, a close review of the literature suggests that interactiv-

ity defines aspects of a delivery system, while interaction defines a two-way communications process (Moore, 1989; Moore & Kearsley, 1995; Wagner, 1994). This distinction is important and supports the focus of this study on the communication process between student and teacher and among students. Computer mediated communication (CMC), a central characteristic of online education, uses e-mail, chat, and computer conferencing systems to facilitate communication between students and teachers and among students (Kearsley, 2000; Turoff & Hiltz, 1995).

For the purposes of this study, instructional interaction is defined as directed communication regarding course content and topics between the instructor and students or among students in the online course. This definition is consistent with previous researchers' efforts to refine the definition of interaction to reflect the communication process that occurs in distance education courses (Moore, 1989; Wagner, 1994).

In addition to focusing the definition of instructional interaction on the exchange of course-related information between instructor and students, the emergence of different methods of communication in online courses (e.g., text chat, e-mail, discussion forums) suggests the need to specify methods of interaction. Kearsley (1995) suggests that a distinction must be made between immediate (synchronous) interaction and delayed (asynchronous) interaction. Synchronous interactions are supported through text-chat, audio-chat, desktop video conferencing, and emerging groupware applications, while asynchronous interactions are supported by tools such as e-mail and electronic discussion forums (Collison, Elbaum, Havind, & Tinker, 2000; Kearsley, 2000; Salmon, 2000). This distinction regarding the method of interaction is important since it affects the provision of feedback to the learner, a concept that Freedman, Tello, and Lewis (2003), Holmberg (1995), Smith and Dillon (1999), and others identify as critical to the learning process. Synchronous methods of interaction can provide immediate feedback to learners while, asynchronous methods of interaction

can provide the learner with more control over where and when the instructional interaction occurs (Moore & Kearsley, 1995).

### **Characteristics of Adult Students**

The student population participating in this study was composed primarily of adults enrolled in online courses offered by a continuing education division at a major public university. The majority of students enrolled in this program are age 25 or older (85% of students were age 25 or greater during the study period). This age range is consistent with the literature that finds that adults, aged 25 or older, compose the majority of students enrolled in continuing education programs. As part-time students with multiple responsibilities, the student role held by adults tends to be secondary to other roles as family members, workers, and community members (McGivney, 2004; Morgan & Tam, 1999; Simpson, 2003). This distinction has particular implications when examining adult student dropout and persistence since these other primary roles place demands on adults that may interfere with their ability to complete a course or program of study.

Researchers have categorized the reasons adult students drop out of college into situational barriers, institutional barriers, and dispositional barriers (Cross, 1981; Morgan & Tam, 1999; Simpson, 2003). Situational barriers arise from a student's life situation and can include cost, lack of time, family responsibilities, and job responsibilities. Dispositional barriers are related to a student's attitudes and self-perceptions as a learner. Institutional barriers include institutional policies and practices that impede adult participation (e.g., inconvenient course times, extensive prerequisites or program requirements, inconvenient location).

## **METHOD**

### **Purpose and Overview**

A non-experimental, correlation study was conducted that examined the relationship between instructional interaction and student persistence

in online education. This study utilized a survey research methodology and records review to investigate the relationship between instructional interaction and student persistence. Specifically, this study asked:

1. Is there a relationship between the frequency of instructional interaction and levels of student persistence in online courses?
2. Is there a relationship between the method of instructional interaction and student persistence in online courses?
3. Do other variables emerge as correlates of persistence among students in online courses?  
An important aspect of research on persistence and dropout is contact with those students who withdraw from a course of program of study (Simpson, 2003; Turoff & Hiltz, 2000). For this reason the study also asked:
4. What reasons do online students provide for persisting in, or withdrawing from, their online courses?

### Participants

The online learning program that participated in this study is operated by a public university located in New England. This university offers online programs in education, engineering, management, information technology, liberal arts, and the health professions at the undergraduate and graduate level. The online program enrolled 5450 students in 264 course sections during the year this study was conducted.

The online program uses a course management system (CMS) for the development and teaching of online courses. The CMS allows faculty to develop course materials that are then accessed by students online via a Web browser. All faculty teaching in the online program participate in a training program that introduces online pedagogy and instructs faculty in how to use the CMS to develop and teach an online course. The CMS used by the program supports both asynchronous and synchronous communication methods. These methods include synchronous text-based chat,

asynchronous text-based discussion forums, and asynchronous e-mail lists.

### Sample

The population for this study included 1569 undergraduate and 51 graduate students enrolled in 76 online courses offered in the fall semester by the continuing education division of a public university. The unit of analysis for persist data (i.e., data from students who maintained enrollment throughout the semester) was each online course. Criteria for selection included:

1. The instructor agreed to allow presentation of a survey tool to all students in the course.
2. The instructor agreed to allow researchers to review course communications.
3. The course met the enrollment-based survey response rates described next.

Participating courses included all of the disciplines offered online by the program at the time of the study.

Following approval by the University's Institutional Review Board, an e-mail was sent to all online instructors requesting permission to survey their students at the end of the semester. If permission was granted, the option to complete an online survey was presented to students when they logged into their online courses during the last three weeks of the study semester. Once a student completed an online survey for a course, they were no longer presented with the option to submit a survey for that course. Upon submission of a survey, student identification data were separated from student response data, protecting the anonymity of individual students.

### Response Rates

Persist survey data were collected from students enrolled in each course during the last three weeks of the semester. Student responses were grouped by course, and per course response rates were calculated. A total of 714 online surveys were returned for the 52 courses that met the participation criteria, representing an

overall 64% response rate. Courses that met the response rate criteria closely reflected the distribution of disciplines in the overall online program and included four graduate and 48 undergraduate courses.

Non-persisters (i.e., students who filed paperwork with the Registrar's Office declaring withdrawal from a course prior to the final grading period) were identified through a review of course enrollment records. The non-persister group included 138 students who administratively withdrew from a course in the online program prior to the end of the 14-week semester. Students who withdrew from multiple online courses were asked to complete a non-persister survey for only one course. The sample was reduced to 102 non-persisters after removing students who withdrew from multiple courses, as well as five students with out of country or undeliverable mailing addresses.

A paper copy of the non-persister survey was mailed to each non-persister along with a \$2.00 cash incentive. Two follow up contacts were made with non-respondents, one by mail and one by telephone, asking if they would prefer to complete the survey over the telephone with a trained research assistant. The response rate among non-persisters was 45%, representing 25 of the 52 courses participating. While this low response rate prevented comparison of responses at the course level, it did assist in identifying reasons why individual, non-persisters withdrew from online courses as well as situational differences between students who were persisters and non-persisters.

### Instrumentation

This study utilized a survey research methodology to collect data regarding instructional interaction in online courses and student attitudes to their online course experience. An online survey was developed to collect data regarding the online course experience of students who maintained enrollment in their online course throughout the 14-week semester. This 37-item survey collected data regarding student demographics and characteristics; the frequency and method of interaction in each online course;

and student attitudes toward interaction, their online course experience, and the contribution of interaction methods (available online at <http://frontpage.uml.edu/faculty/stello/survey.htm>). Students could only submit one survey per registered online course.

A non-persister survey was developed that included items similar to the demographic, interaction, and attitude items contained in the online student survey, but also solicited the students' reasons for dropping out of their online courses (available online at <http://frontpage.uml.edu/faculty/stello/survey.htm>).

### Independent Variable

The independent variable in this study is instructional interaction. For the purposes of this study, instructional interaction is defined as directed communication regarding course content and topics between the instructor and students or among students in an online course (Kearsley, 1995; Wagner, 1994). This study examined two aspects of instructional interaction, the frequency and the method of instructional interaction. Frequency of instructional interaction refers to how often students and instructors, and students and students, interact regarding course related materials. Frequency of interaction data were collected through persister surveys. Students responded to two items on the survey on a 5-point Likert scale asking them to indicate how frequently they used course communications tools to communicate with their instructor regarding course matters and how frequently they used course communications tools to communicate with their classmates regarding course matters. Per course Frequency of Instructor Interaction scores ranged from 2.12 to 4.00, with a mean score of 3.10 ( $SD = .41$ ). Per course Frequency of Student Interaction scores ranged from 1.25 to 3.86, with a mean score of 2.59 ( $SD = .54$ ). A strong, positive correlation between frequency of instructor-to-student and student-to-student interaction ( $r_{50} = .68, p < .001$ ) suggested the creation of an Interaction Index as an overall measure of instructional interaction within each course. The sample mean Interaction Index



score was 2.83 ( $SD = .44$ ). Per course Interaction Index scores ranged from a low of 1.97 to a high of 3.93.

Method of instructional interaction refers to whether the interaction within a course occurred asynchronously, using the discussion forum or e-mail lists, or synchronously, using the online chat tool. Correlational analysis between the method of instructional interaction and course persistence rates required the creation of three method of interaction indexes. These three indexes reflected the overall interaction on the part of instructors and students within each method of interaction per course. A reliability analysis of the three items composing each index revealed coefficient alphas of .92 for the Chat Method Index, .93 for the Discussion Method Index, and .77 for the E-mail Method Index. Once the three Method of Interaction Indexes were calculated, the distribution of course scores and descriptive statistics were reviewed for each index (Table 1).

### Intervening Variables

Two attitude indexes were developed to examine student satisfaction with each online course along with student attitudes to dimensions of interaction. Previous research suggests that student satisfaction with individual online courses is a key indicator in a student's decision to persist or dropout of a course (Chyung, Winiecki, & Fenner, 1998; Jun, 2005; Levy, 2005). Additional research has also established a clear relationship between faculty interaction and student perceptions of learning and student

satisfaction in online courses (Arbaugh, 2005; Hay et al., 2004; Jiang & Ting, 2000; Roblyer & Wiencke, 2004; Shea et al., 2001; Swan et al., 2000). Each index provides a composite, ordinal measure of the variables under examination (Babbie, 2001).

Students were asked to indicate their level of agreement on a 4-point Likert scale with three statements examining their satisfaction with their online course. A reliability analysis conducted with these three items resulted in a coefficient alpha of .89, with item to total correlations between .56 to .92, suggesting a high degree of reliability and the creation of an attitude to course index. Student responses to these three items were summed at the course level and a mean Attitude to Course value was calculated for each course.

Students were asked to indicate their level of agreement on a 4-point Likert scale with four statements examining dimensions of instructional interaction: (a) timeliness of instructor feedback, (b) utility of instructor feedback, (c) amount of instructor communication, and (d) amount of student communication. A reliability analysis conducted with these four items resulted in a coefficient alpha of .91, with item to total correlations ranging from .55 to .86, suggesting a high degree of reliability. Student responses to these items were summed at the course level and a mean Attitude to Interaction value was calculated for each course.

Three items on the persist survey examined student attitudes toward the use of each method of interaction. These course contribution by method items examined the strength of student agreement with the following statement: "Overall, would you say (method) contributed to your online learning experience?" Student responses for the three Contribution by Method items were grouped at the course level, and descriptive statistics were calculated. An initial review of the distribution of per course responses for each item approximated a normal distribution, supporting the use of these items for correlational analysis.

*Table 1. Means and standard deviations for three method of interaction indexes*

Index	M	SD
Chat Method Index	8.08	1.66
Discussion Method Index	9.00	2.00
Email Method Index	6.97	1.02

### Dependent Variable

Student persistence, the dependent variable in this study, is considered a positive outcome measure but is often quantified through the measurement of its negative equivalent outcome, dropout. Student persistence was measured by examining enrollment rosters for participating courses at the end of the two-week Add/Drop period (Total Course Enrollment) and again after final course grades were submitted. The examination of course enrollment rosters assisted in identifying the number of students who administratively withdrew (i.e., students who filed paperwork to withdraw) from their online course after the two-week Add/Drop period (Voluntary Dropout) and the number of students who failed or took an incomplete for a course (Involuntary Dropout). A final course enrollment was calculated by subtracting Vol-

untary Dropout and Involuntary Dropout from the Total Course Enrollment, then dividing this number by the Total Course Enrollment.

The per course persistence rate provided a measure of the percentage of students completing each online course. The 52 courses that met the persister survey response rate criterion for this study had a mean persistence rate of .80 (SD = .11), meaning 80% of the students enrolled in online courses selected to participate in this study completed the course with a passing grade. Persistence rates among courses ranged from a low of 42% to a high of 100%.

### Characteristics of Persisters and Non-Persisters

Demographic data (Table 2) were collected via the online student survey from students who maintained enrollment in their online course

*Table 2. Contingency table analysis between persisters and non-persisters in regard to demographic and situational characteristics of respondents*

	Persister	Non-persister	$\chi^2$	<i>p</i> value
Total Sample	<u>n</u> = 714	<u>n</u> = 46		
	%	%		
Characteristics				
Age at time of survey (years)			2.97	.23
18-24	14.9	20.5		
25-44	67.2	54.5		
45 or older	17.9	25.0		
df=2				
Gender			0.88	.35
Male	52.8	45.7		
Female	47.2	54.3		
df=1				
Primary adult role			1.03	.79
Student	8.5	6.8		
Parent	20.1	15.9		
Working professional	63.1	65.9		
Other	8.3	11.4		

*Note: Values represent % within persister and non-persister groups.*

*Table 2. continued*

df=3		
Hours worked per week for pay		3.19 .20
30 hours or less	21.1	13.6
31-40 hours	26.7	20.5
More than 40 hours	52.2	65.9
df=2		
Children under 18 at home		0.95 .33
Yes	45.2	37.8
No	54.8	62.2
df=1		
Years of Internet usage		2.95 .09
1-3 Years	9.9	2.2
More than 3 Years	90.0	97.8
df=1		

*Note: Values represent % within persister and non-persister groups.*

through the end of the semester (persisters). Comparable demographic data were also collected for non-persisters who participated in the telephone survey or who completed and returned a mail survey.

A two-way contingency table analysis was conducted to evaluate differences between persisters and non-persisters in regard to these characteristics. This review suggests that in many respects, these two groups are quite similar. Both groups are distributed similarly, with no significant differences noted, in respect to age, gender, primary adult roles, presence of children in the home, and Internet use experience. A larger percentage of non-persisters report working more than 40 hours per week; however, this difference was not statistically significant.

A larger percentage of persisters report being enrolled in a certificate or degree program (15.5% difference), and a larger percentage of persisters indicate that they intend to take another online course in the next semester

(28.7% difference). A two-way contingency table analysis was conducted to evaluate the difference between persisters and non-persisters in regard to both their enrollment in a program and their intent to take another online course (Table 3). Persisters were significantly more likely to be enrolled in a degree or certificate program than non-persisters were and were also significantly more likely to indicate that they intended to take another online course in the subsequent semester.

### Frequency of Interaction

This research asked if there is "a relationship between the frequency of instructional interaction and levels of student persistence in online courses." An examination of the scatterplot comparing Course Persistence Rate and the Interaction Index scores did not identify a linear relationship between these variables (Figure 1).

A strong positive correlation was observed between the frequency of instructor-to-student

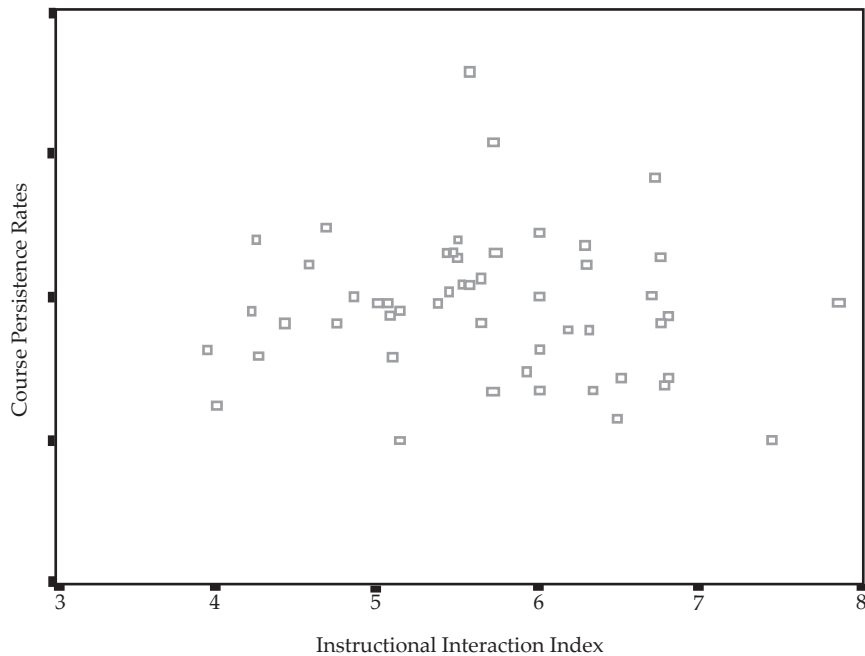


Table 3. Contingency table analysis between persisters and non-persisters in regard to certificate/degree status and intent to return

	Persister	Non-persister	$\chi^2$	p value
Enrolled in Degree Program			5.03*	.03
Yes	72.0	56.5		
No	28.0	43.5		
	N=714	N=46		
Intent to Return			15.74***	.000
Yes	86.4	57.7		
No	13.6	42.3		
	N=469	N=26		

Note: Values represent % within persister and non-persister groups.  
 df=1, \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Figure 1. Course persistence rates by frequency of interaction index scatterplot



interaction and the frequency of student-to-student interaction within the online courses participating in this study. A Pearson Product Moment Correlation conducted between the course scores for Frequency of Instructor Interaction and Frequency of Student Interaction confirmed a positive correlation between frequency of instructor-to-student and student-to-student interaction, significant at  $r_{50} = .68, p < .001$ . The strength of this correlation suggests that as the frequency of instructor-to-student interaction increases in a course, the frequency of student-to-student interaction also increases.

### Method of Interaction

The second research question asked if “there is a relationship between the method of instructional interaction and student persistence in online courses.” A series of scatterplots was constructed pairing each of the Method

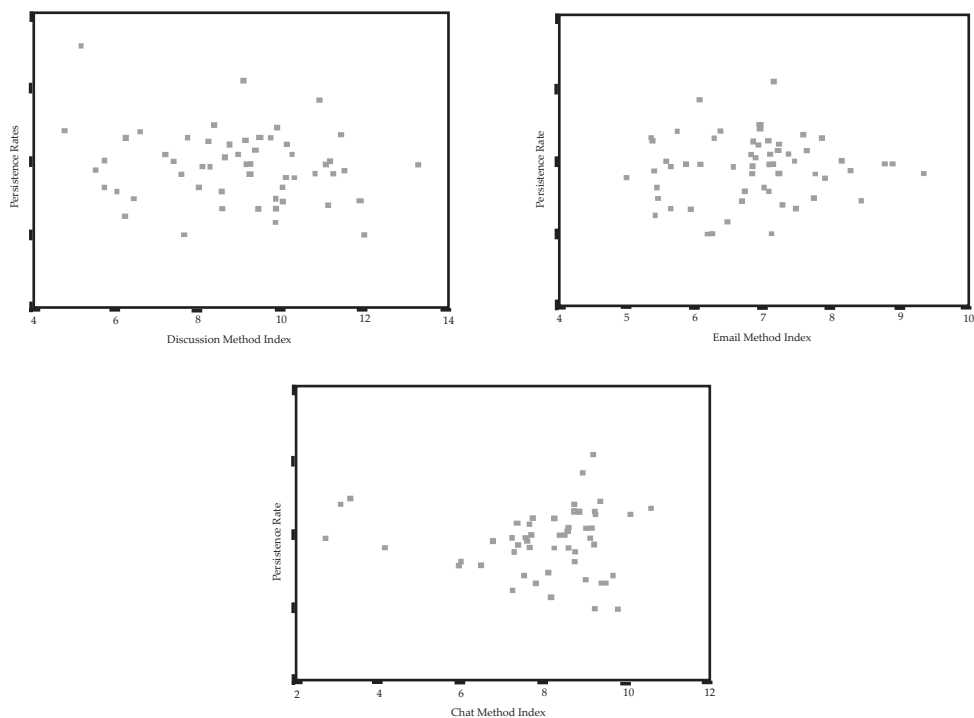
of Interaction Indexes to Course Persistence Rates (Figure 2).

An examination of scatterplots comparing course persistence rates with each method of interaction index did not suggest a linear relationship between these variables; however, our earlier review of the mean Method of Interaction scores (Table 1) suggests that some differences exist in how each course used each method of interaction.

### Student Attitudes to Interaction

A third research question asked if “other variables emerge as correlates of persistence among students in online courses.” The persister student survey asked respondents to consider how other aspects of interaction contributed to their online course experience. These data were used to examine the relationship between persistence and student attitudes to interaction,

Figure 2. Course persistence rates by three method indexes



student attitudes to the online course experience, and student attitudes regarding the contribution of a specific interaction method.

Strong, positive correlations, as indicated in Table 4, were observed at the course level between Student Attitudes to Interaction and: (a) the frequency of instructor-to-student interaction, (b) the Discussion Method Index, and (c) the E-mail Method Index. Similar positive correlations were observed at the course level between Student Attitudes to Online Course and the same three variables. These findings suggest a strong, positive relationship between the use of asynchronous methods of interaction by the instructor within a course (i.e., discussion forum, e-mail lists), and positive student attitudes toward that course. A modest, positive correlation was observed between Student At-

titudes to Interaction and Course Persistence Rates,  $r_{52} = .30, p < .05$ .

Three course level measures, Course Contribution by Method, examined students' perceptions regarding the contribution each method of interaction made to their online learning experience. A strong positive correlation was observed between Course Persistence Rates and the Course Discussion Contribution scores,  $r_{52} = .42, p < .01$  (Table 5).

A multiple regression analysis was conducted to evaluate how well the contribution by method variables and method of interaction indexes predicted persistence. The predictors included the three contribution of method variables and the three method of interaction

Table 4. Intercorrelations of per course attitude scales by per course frequency and method of interaction scores

	Attitude to Interaction	Attitude to Course
N = 52		
Frequency of Instructor (to Student) Interaction	.62***	.41**
Frequency of Student (to Student) Interaction	.22	.07
Chat Index	.15	.09
Discussion Index	.55***	.39**
E-mail Index	.43**	.41**

2-tailed significance, \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Table 5. Intercorrelations of per course contribution items to course persistence rates

	Persistence Rate	n
Chat Contribution	.008	51
Discussion Contribution	.416**	52
E-mail Contribution	.226	52
2-tailed significance, * $p < .05$ , ** $p < .01$ , *** $p < .001$		

indexes. The Course Persistence Rate was the criterion variable. A stepwise multiple linear regression analyses was conducted. The Contribution by Discussion Method variable and the Discussion Method Index were significantly related to the Course Persistence Rate,  $F(2, 48) = 8.87, p = .001$ . The sample multiple correlation coefficient was .51, indicating that approximately 26% of the variance in the course persistence rate in the sample can be accounted for by the linear combination of these two measures. The remaining Contribution by Method and Method of Interaction variables did not add to the predictive value of the equation.

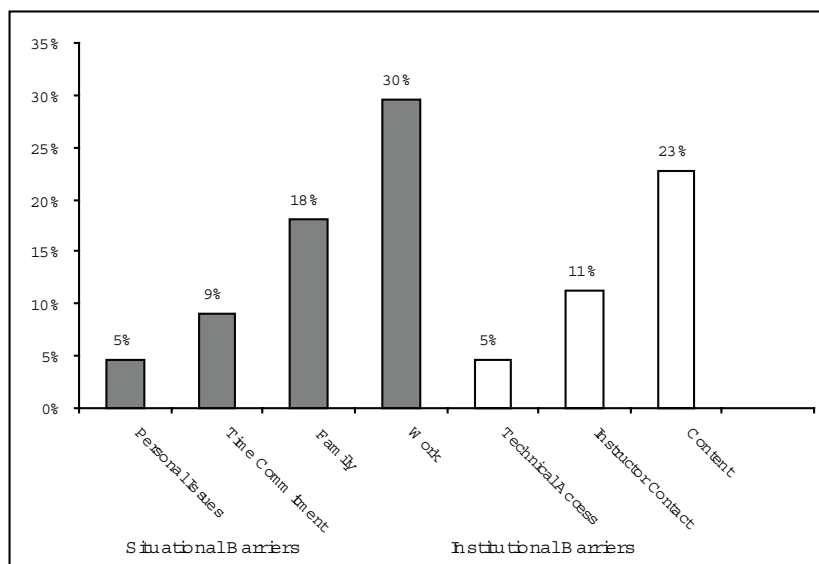
### Reasons for Withdrawal

As discussed earlier in the Literature Review, student dropout is a complex phenomenon caused by multiple factors. This study has established that 26% of the variance in the study's course persistence rates can be attributed to the use of asynchronous discussion forum for activities that students perceive as contributing

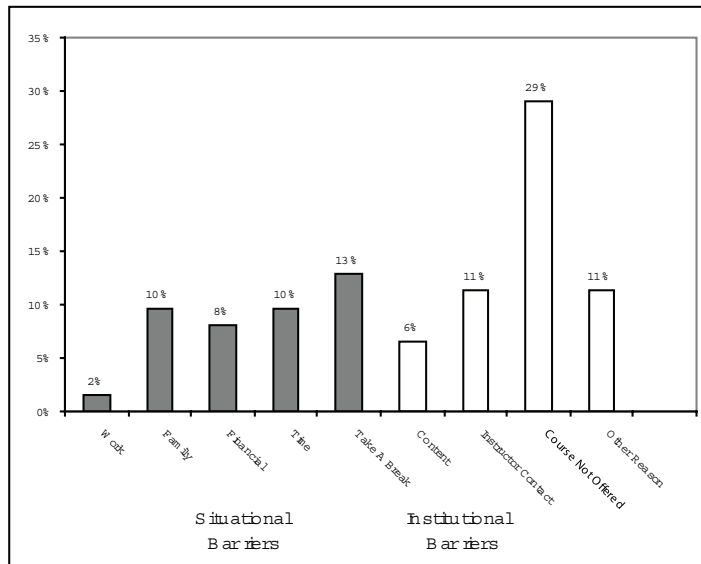
to the course learning experience. In order to better understand the range of factors contributing to a student's decision to persist or dropout, both the persister survey and non-persister survey asked respondents to provide reasons for persisting in, or withdrawing their online courses. Student responses were grouped into situational and institutional barriers as discussed earlier (Figure 3). Situational barriers accounted for 62% of the reasons non-persisters provided for withdrawing from their online course. The primary reason identified by non-persisters for withdrawing from their online course was work commitments (30%).

In contrast, persisters identified institutional barriers (46%) slightly ahead of situational barriers (40%) as the reason they did not intend to take a future online course (Figure 4). The primary institutional barrier persisters identified was that the course they required was not offered online (29%). Only one persister identified work commitments as a reason for not taking a future online course.

Figure 3. Percentage distribution of non-persister reasons for withdrawal



$n = 46$

Figure 4. *Persister reasons for not taking another online course*

$n = 62$

The analysis conducted to examine this research question suggests there may be differences between non-persisters and persisters in regard to their commitment to complete a program of study as well as the impact the number of hours worked per week has on a student's ability to persist in their online studies. This analysis also suggests that instructor interaction accounts for a modest percentage of the reasons students provide for dropping (11%, non-persister, Figure 3) or not enrolling in a future online course (11%, persister, Figure 4).

## DISCUSSION

The results of this study suggest that the relationship between student persistence in online education and the use of asynchronous discussion forums is mediated by student attitudes toward their respective online courses and the perceived educational contribution of discussion forum use. The data indicate that student attitudes to interaction and student perceptions

regarding the usefulness of particular methods of interaction are positively related to course persistence rates. Factors such as the timeliness of instructor feedback, appropriateness of instructor feedback, and amount of course-related communications can positively or negatively impact student attitudes toward the course and their decision to persist or drop out of an online course.

In addition to the correlational analysis discussed previously, this study examined situational and demographic characteristics of students enrolled in online courses.

While persisters and non-persisters were similar in many ways, several differences emerged between the groups that may influence their decision to persist or withdraw. A larger percentage of non-persisters reported working more than 40 hours per week for pay. A significantly larger percentage of persisters were enrolled in a certificate or degree program, and a significantly larger percentage of persisters indicated that they intended to take another on-

line course in a subsequent semester. Situational barriers—comprised primarily of student work commitments, student family commitments, and student time commitments—accounted for the majority of reasons non-persisters provided for withdrawing from their online course.

Taken together, the results of this study suggest that adult learners, facing demands on their time from family, work, and school commitments, respond favorably to properly structured asynchronous course activities such as the discussion forum. These findings have implications for online faculty development programs, the design and development of new online programs, as well as for the technology we use to “conduct” online courses. Online program administrators should thoughtfully consider these results as they pilot new blended programs, which require on-campus meetings, and introduce synchronous video technologies, which require students to meet online at the same time as the instructor. While a number of factors influence a student’s decision to persist or dropout, it will become increasingly important for online program administrators to control institutional factors that support student participation and success.

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