Assessing Satisfaction and Academic Locus of Control of Dropout Students in e-Learning Courses

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ABSTRACT

Although studies have been conducted related to dropouts from on-campus and distance education courses, none provide a clear definition of dropout from academic courses. It is the main purpose of this study to propose a clear definition of dropout from e-learning courses. Additionally, literature suggests that students attending e-learning courses dropout at substantially higher rates than their counterparts in on-campus courses. Little attention has been given to the key factors associated with such substantial difference. This study explores two main constructs: 1) academic locus of control; and, 2) students' satisfaction with e-learning. Results show that students' satisfaction with e-learning is a key indicator in students' decision to dropout from e-learning courses. Moreover, dropout students (non-completers) reported to have significantly lower satisfaction with e-learning than students who successfully completed (completers) the same e-learning courses. Additionally, results of this study show that the academic locus of control appears to have no impact on students' decision to drop from e-learning courses.

INTRODUCTION

With the growing use of Internet and Asynchronous Learning Networks (e-learnings) as a mainstream vehicle for online courses, some educational institutions even go "campusless" (Thor & Scarafiotti, 2004). The staggering increase of e-learning courses in the past decade by traditional universities has also raised concerns about the dropout rates associated with e-learning courses (Direkx & Jha 1994; Parker, 1999; 2003; Ariwa, 2002; Xenos, Pierrakeas, & Pintelas, 2002). Literature suggests that students attending e-learning courses dropout at a substantially higher rate than their counterparts in on-campus courses (Parker, 1999). Dropout rates from e-learning courses were documented around 25%-40% as compared to 10%-20% in on-campus courses (Carter, 1996; Parker, 1999; 2003). More dramatic results were reported for online training centers where more than 50% of its learners dropped out compared to only 10% in the standard on-site training settings (Zielinski, 2000). Nevertheless, little attention has been given in e-learning literature to the key factors associated with such substantial differences in dropout rate (Parker, 1999). Fjortoft (1995) suggested that further research needs to expand beyond the current models of dropout and look at other factors and their interrelations as the nature of distance education is ever-changing.

Rotter's (1966) locus of control was reported as a key factor in "understanding the nature of the learning process in various kinds of learning situations" (Whittington, 1995). Parker (1999) suggests that locus of control is a key predictor of dropouts from correspondence and audiocassette distance education; however, further research is needed to confirm such findings in online courses. Consequently, this study will seek to further confirm such findings in the context of online e-learning courses. Moreover, other scholars suggest that students' satisfaction with e-learning is an important factor in measuring the success or effectiveness of such a medium (Hiltz & Johnson 1990; Alavi, Wheeler, & Valacich, 1995; Swan et al., 2000; Bures, Abrami, & Amundsen, 2000; Piccoli, Ahmad, & Ives, 2001). Consequently, this study also proposes to measure students' satisfaction with e-learning in order to find its impact on dropouts from e-learning courses. The central aim of this paper is to investigate the differences of these two main factors (academic locus of control and students' satisfaction with e-learning) among dropout and completer students in e-learning courses. In the context of this study, completer students are defined as students that successfully completed an e-learning course.

The remaining of this paper is organized as follows: the subsequent section will review the relevant literature in order to provide the theoretical background for this study. It provides a review of the literature related to dropouts from on-campus higher education courses, dropouts from distance education courses, locus of control, academic locus of control, and students' satisfaction with e-learning. The following section presents the hypotheses guiding this research study and some rationale for each hypothesis. Next, the methodology guiding this research is reviewed including the instrument and validity issues. Data collection, analysis and results of the study are presented subsequently. The last section concludes this research study with discussion of findings, contributions of the study, limitations, and suggestions for future research.

THEORETICAL BACKGROUND

Dropout from e-Learning Courses

A significant number of articles present pessimistic results on dropout rate from distance learning courses. Even before the Internet became a major educational delivery vehicle, estimates of dropouts from distance and correspondence education range from 25% to 60% (Kamber, 1989, 1990; Wilkinson & Sherman, 1989; Direkx & Jha 1994).

Several hypothetical explanations have been raised to indicate why the dropout rate in e-learning courses is higher. Some scholars investigated the factors associated with dropout from on-campus courses (Tinto, 1975) and others looked at dropout from correspondence and earlier forms of distance education courses (Munro, 1987; Billings, 1988; Williamson & Creamer, 1988; Kamber, 1989, 1990; Direkx & Jha, 1994; Fjortoft, 1995; Volkwein & Lorang, 1995; Whittington 1995; Parker, 1999). There is a clear consensus in literature that dropping out, especially in distance education, is a difficult and perplexing phenomenon. Munro (1987) stated that dropout is similar to automobile accidents as it has a single symptom with many possible causes. Kember (1989, 1990) developed a model based on Tinto's (1975) model of dropout from correspondence distance education courses. His model includes components such as demographic characteristics, students' motivation, academic abilities, and students' social factors. Fjortoft (1995) criticize Kember's (1989, 1990) model for failing to "take into consideration the job-related motivation of adults" (p. 3).

Several scholars suggested that demographic characteristics have a minimal effect on dropouts from distance education courses (Williamson & Creamer, 1988; Volkwein & Lorang, 1995). Contrary, Dille and Mezack (1991) conducted a study comparing completer students and dropout students attending television broadcasting (telelearning) courses.

They concluded that little research has been conducted on the personality traits that characterize a completer student in telelearning courses. Additionally, they indicated that completer students in telelearning courses are older, have higher grade point average, and have more college credits than dropout students (Dille & Mezak, 1991). Moreover, Dille and Mezack (1991) also suggested that locus of control is an important factor when investigating dropouts from distance education courses. Xenos, Pierrakeas, and Pintelas, (2002) conducted field interviews with dropout students in distance education courses. Their results show that there is a significant correlation between students' dropout and students' age in distance education courses. They claimed that dropout students were older and were employed more hours per week than students that completed the distance education courses. Moreover, their results indicate that gender and students' family status were not found to play a key role as a predictor of dropout from distance education courses.

Parker (1999) conducted a study on various variables as predictors of students' dropout from distance education courses. The focus of her study was in locus of control and some demographic characteristics such as gender, age, and the number of hours employed as the main predictors for dropout or success in e-learning courses. Parker (1999) concluded that locus of control was the main variable in predicting dropout with an overall accuracy of 80%. Consequently, this study will investigate the impact of locus of control on dropout from e-learning courses. Additional information is presented in the Locus of Control section below.

Chyung, Winiecki, and Fenner (1998) conducted a study looking at factors related to dropout rate of adult students from distance education courses. Their results show that students' satisfaction during the first and second week was the main factor in predicting dropout from e-learning courses. Consequently, this study will also investigate the impact of students' satisfaction on dropout from e-learning courses. Additional information is provided in the students' satisfaction section below.

Several studies have been conducted related to dropouts from academic courses, both on-campus and distance, however, no clear definition of dropout from e-learning courses is provided. Thus, in the context of e-learning courses, this study will define dropout students (or non-completers) as students that voluntarily withdraw from e-learning courses while acquiring financial penalties. Therefore, students who opt to drop a course during the "add/drop period" are not considered by the definition as dropout students since they are fully refunded for their tuition or have no financial penalties for dropping out during that period. Moreover, students that drop a course during this early period have no indication on their transcript for it. Whereas students that drop a course after the early period of the term (known as "late drop") are not refunded for their tuition and are not able to switch to another course. In this case, the dropped course remains on the students' transcript with a note that the course was dropped late without a reported grade (usually noted as "DR"). Dropped courses remain on students' transcript until graduation.

Locus of Control
Rotter (1966) proposes locus of control as a measure of individual perceptions on outcomes resulting from their own behaviors relative to their perceptions on outcomes resulted from actions of someone else. He proposed a 40-item true-false instrument to measure the locus of control. Two polar points were proposed in the measure of the locus of control that one may perceive regarding outcomes of certain behavioral actions (Rotter, 1989). The first is labeled as the external control that indicates ones' perceptions of outcomes that are due to chance, lack, fate, or actions of others; thus the notation "external". Whereas the second is labeled as the internal control, this indicates ones' perceptions of outcomes that are mainly due to their own actions; thus the notation "internal."

Considerable research has been done using locus of control in diverse settings such as children education, management, intellectual achievement responsibility, marital satisfaction, parenting, general health, mental health, drinking, weight loss, and sexual issues (Lefcourt, 1991). Although Rotter (1966)'s instrument was developed to measure general locus of control, he noted that locus of control "is of major significance in understanding the nature of learning processes in different kinds of learning situations" (p. 1). Trice (1985) noted that although Rotter's (1966) instrument has been used over several decades in various settings, it was not fully tailored for educational settings. Consequently, Trice (1985) proposed an abbreviated 28-item true-false instrument based on Rotter's (1966) work to specifically measure Academic Locus of Control (ALOC). Using this ALOC instrument, students were to report on their perceptions of locus of control in regards to their academic achievements. Richardson (1995) conducted a study on over a thousand university students in the Caribbean using ALOC. His results indicate that there is no significant difference on ALOC between gender distributions, however there was a significant difference on ALOC across different academic majors and age categories. Students majoring in art scored are more internally on ALOC than students from other majors such as social sciences, and natural sciences. Additionally, older students (over 30) scored more internally on ALOC than younger students. Dollinger (2000) conducted a study looking at the effect of ALOC on students' grades in college courses. His results suggest that students that scored more internally on ALOC received significantly higher grades than students that scored more external on the ALOC measure. Consequently, this study measured the ALOC of students that successfully completed online e-learning courses (completers) and dropout students from such courses. It was the intent of this study to compare results between those two groups in order to propose methods of reducing dropout rates from e-learning courses.

Students' Satisfaction
A second key factor proposed in literature deals with students' satisfaction with e-learning. Several studies reported students' satisfaction as a major factor that is related to students' decision to dropout from distance education courses (Chyung, Winiecki, & Fenner, 1998). Chyung et al. (1998) reported that "forty-two percent of the students who dropped out expressed dissatisfaction with the learning environment as the reason [for dropping]" (p. 7). Fredericksen, Pickett, Shea, Pelz, and Swan (2000) reported that students who reported the highest levels of satisfaction with various aspects of e-learning courses also reported significantly higher levels of learning than students who rated their satisfaction level as lower. Moreover, Fredericksen et al. (2000) also noted that older students appear to report a higher level of satisfaction from e-learning course than younger students. Levy and Murphy (2002) noted that administrators, practitioners, and researchers should have a great interest in understanding the key factors that affect student perception of e-learning effectiveness. Levy (2003) conducted a study with over 200 students attending e-learning courses on the relationship of students' satisfaction and e-learning effectiveness. He reported that students' satisfaction with e-learning is a significant factor in measuring the effectiveness of e-learning (Levy, 2003). Additionally, Sachs and Hale (2003) noted that universities and colleges that offer e-learning courses should put major emphasis in students' satisfaction in measuring the success of such programs and students' potential to successfully complete the program. Moreover, they noted that the goal of such schools should be to keep the students' satisfaction level with e-learning program as high as possible (Sachs & Hale, 2003).

Shea, Pickett, and Pelz (2003) reported on the relationship of pedagogy, design, and faculty development issues to students' satisfaction in e-learning courses in addition to proposing a conceptual framework for students learning in e-learning environments. Their results indicate that students' satisfaction level in e-learning courses is highly correlated with various issues such as instructional design and organization of the e-learning courses, instructors' discourse facilitation, and instructors' direct interaction. They concluded by noting that the key factors that contribute to students' satisfaction can help uncover the drivers for effective e-learning environments. Nonetheless, this study proposes taking this notion further by looking at the impact of students' satisfaction on dropout from e-learning courses.

Richardson and Swan (2003) examined the role of social presence in e-learning courses as well as its impact on students' perceived learning and satisfaction with the instructor. Their results show that satisfaction with the instructor is strongly correlated with students' perceived learning

(Richardson & Swan, 2003, p. 78). Moreover, they concluded that additional e-learning research is needed to determine what constitute positive social behaviors of the instructor in order to improve e-learning courses (Richardson & Swan, 2003, p. 81). However, in an effort to improve e-learning courses, it is also essential to understand the factors that may hinder students from completing courses in such environments. Thus, the aim of this study was to look at the two main constructs proposed by literature (academic locus of control and students' satisfaction) and their impact on students' dropout from e-learning courses.

HYPOTHESES AND METHODOLOGY

Hypotheses
From the relevant literature above it is evident that locus of control, or more specifically academic locus of control (ALOC), may be a potential factor related to students' dropout from college courses (Whittington, 1995; Parker, 1999). This study attempts to validate such theoretical impact using two groups of students: one that successfully completed online e-learning courses (completers) and another that dropped from online e-learning courses (non-completers). Thus, this study proposes the first hypothesis as follows:

H1: The Academic Locus of Control (ALOC) score of dropout students will be more external than that of completer students in e-learning courses.

Several studies suggested that students' satisfaction with e-learning is another major factor in the success or effectiveness of such medium, thus also determining students' completion of e-learning courses (Hiltz & Johonson 1990; Alavi et al., 1995; Webster & Hackley, 1997; Chyung et al., 1998; Swan et al., 2000; Bures et al., 2000; Piccoli et al., 2001). Consequently, this study proposes the second hypothesis as follows:

H2: The level of satisfaction of dropout students will be lower than that of completer students in e-learning courses.

Other studies suggested that aside from the students' perceived measures, such as locus of control and satisfaction, demographic variables should have been given attention in future studies of dropouts from distance learning and e-learning courses (Dille & Mezack, 1991). Thus, this study proposes the following set of hypotheses related to demographics factors:

H3a: The gender distribution of dropout students will be different than that of completer students in e-learning courses.
H3b: The college status of dropout students will be different than that of completer students in e-learning courses.
H3c: The age distribution of dropout students will be different than that of completer students in e-learning courses.
H3d: The residency status of dropout students will be different than that of completer students in e-learning courses.
H3e: The academic major distribution of dropout students will be different than that of completer students in e-learning courses.
H3f: The graduating term of dropout students will be different than that of completer students in e-learning courses.
H3g: The GPA score of dropout students will be different than that of completer students in e-learning courses.
H3h: The weekly working hours of dropout students will be different than that of completer students in e-learning courses.

Methodology and Instruments
There were two instruments used in this study along with a general students' demographics information sheet. The first one includes a 12-item instrument based on Trice (1985)'s Academic Locus of Control instrument. Studies have also shown that Likert-type measures of locus of control are as valid as the original forced-choice proposed by Rotter (Harris & Salomone, 1981). Thus, students were asked to rate each item on a five-score Likert-type scale ranging from "Strongly Disagree" to "Strongly Agree." The total score can be generated by summing up all the internally answered scores. Total score can range from minimum of 12 (external ALOC) to a maximum of 72 (internal ALOC).

The second instrument is a 7-item survey based on Bures et al.'s (2000) instrument and it measures students' satisfaction with e-learning. This instrument also provides students with a five-score Likert-type scale ranging from "Strongly Disagree" to "Strongly Agree". Some of the questions are intentionally set in a negative form. Therefore, prior to generating the total score, a simple transformation to a positive form was required. Following the transformation, a total score can be generated by summing up the scores. Students' satisfaction total score can range from a minimum of 7 (very low satisfaction level) to a maximum of 35 (very high satisfaction level).

DATA COLLECTION & RESULTS

Data Collection
Fowler (1993) suggested that use of computer-assisted data collection can greatly improve the reliability of the data as it eliminates the human data entry step that includes some natural human errors (p. 63). Consequently, the surveys and the demographics sheet were delivered via the web to dropout students and to students who successfully completed online e-learning courses. The data was collected during Spring of 2003. The study include eighteen (18) undergraduate and graduate e-learning courses at a state university in the southeastern US. The courses were all from the college of business administration. Initially, there were 453 students registered to the eighteen (18) e-learning courses. At the end of the term, a student assistant was asked to review the class-rolls of the e-learning courses and generate two e-mail lists: one of students who successfully completed the e-learning courses and another of students who dropped from the e-learning courses. This resulted in a sample of 372 completers and 81 dropout students, resulting in about 18% overall dropout rate. An e-mail request to take part in this study was sent to the two groups. 25 dropout and 108 completer students completed the survey representing about 31% response rate of the dropout group and about 29% response rate of the completer students with a total of 133 submissions or about 30% overall response rate. No duplications were found in the data collected.

Analysis and Results
The data was analyzed for group comparison using one-way ANOVA and non-parametric tests (Mann-Whitney) for satisfaction, as well as for ALOC. Results from both analyses are presented in Table 4.1. Results show that students' ALOC was found non-significantly different between the two groups: completer students and dropout students from e-learning courses. This indicates that the first hypothesis (H1) is not supported as the level of ALOC for dropout students is not significantly different than that of completer students in e-learning courses. Additionally, results show that students' satisfaction was found significantly different (at $p<.01$) between the two groups indicating that the second hypothesis (H2) is supported as the level of students' satisfaction with e-learning for dropout students is significantly lower than that of completer students in e-learning courses.

Similar analysis was done on several demographic characteristics between the two groups of students. Results are presented in Table 4.2. The demographics characteristics include: gender (H3a), college status (H3b), age group (H3c), residency status (H3d), academic major (H3e), graduating term (H3f), GPA (H3g), and weekly working hours (H3h). Results of both analyses support only two out of the eight demographics hypotheses (H3b and H3f). The first supported hypothesis is college status (H3b), which indicates that the college status of dropout students was found to be significantly lower (at $p<.05$) than that of completer students in e-learning courses. Thus, results of this study indicate that largely, dropout students from e-learning courses are in a lower college status than those who successfully complete e-learning courses.

The second supported demographic characteristic hypothesis is graduating term (H3f), which indicates that the graduating term of dropout

Table 4.1. Students' Satisfaction and ALOC Group Comparison

	Non-Completers (Dropout) (n=25)		Completers (n=108)		Oneway ANOVA		Noparametric (Mann-Whitney Test)	
	M	S.D.	M	S.D.	F	P	Z	Sig. (2-t)
ALOC	46.36	6.94	46.08	7.27	0.030	0.863	-0.084	0.933
Satisfaction	23.76	6.99	27.52	4.49	*11.28* **	*0.001*	*-2.35* *	*0.019*

* - p< 0.05
** - p< 0.01

Table 4.2. Group Comparison – Demographics Variables

Variable	Non-completers (n=25)		Completers (n=108)		Oneway ANOVA		Noparametric (Mann-Whitney Test)	
	M	S.D.	M	S.D.	F	P	Z	Sig. (2-t)
Gender	16F, 9M		60F, 48M		0.58	0.446	-0.77	0.444
College Status	3.68	0.85	4.09	0.88	*4.504* *	*0.036*	*-2.273* *	*0.023*
Age Group	3.32	1.41	3.17	1.26	0.286	0.594	-0.489	0.625
Residency Status	1.40	1.00	1.70	1.23	1.315	0.254	-1.263	0.207
Major	4.60	3.23	5.31	2.47	1.504	0.222	-0.919	0.358
Graduateing Term	4.16	1.03	3.52	1.09	*7.184* **	*0.008*	*-2.826* **	*0.005*
GPA	3.12	0.56	3.23	0.56	0.759	0.385	-0.829	0.407
Work (hrs/wk)	3.04	1.88	3.06	1.66	0.002	0.967	-0.033	0.974

* - p< 0.05
** - p< 0.01

Table 4.3. Cronbach's α for ALOC and Students' Satisfaction Instruments

	Non-Completers (n=25)	Completers (n=108)
ALOC (12-item)	0.80	0.86
Satisfaction (7-item)	0.83	0.74

students from e-learning courses was found to be significantly higher (at p<.01) than that of completer students in e-learning courses. Therefore, results of this study indicate that dropped students appear to graduate in a later term than completer students in e-learning courses. This is consistent with the previous supported hypothesis (H3b) about students attending e-learning courses that are in higher college status are less likely to drop as they may need to graduate in that term or next one.

Six more demographic characteristic hypotheses were not supported by this study. They indicated that there is no difference between dropout and completer students in e-learning courses for gender (H3a), age group (H3c), residency status (H3d), academic major (H3e), GPA (H3g), and weekly work hours (H3h). These results are consistent with prior research (Xenos et al., 2002).

Straub (1989) suggests that the reliability of an instrument is generally measured by Cronbach's á. High Cronbach's á (>.75) is usually a sign that survey items are reliable (Straub, 1989, p.150). Cronbach's á ?reliability measure was tested for each of the instruments indicating high reliability ranging from .74 to .86. Results for both students' satisfaction and students' ALOC instruments are presented in Table 4.3.

DISCUSSION AND CONCLUSIONS

Discussion of Findings
Supporting literature related to dropout from higher education courses, dropout from distance education courses, locus of control, academic locus of control, and students' satisfaction are drawn upon to provide the theoretical background for this study. A clear understanding of the factors that contribute to dropout in e-learning courses can help course designers and instructors to improve and support courses in these initiatives. Moreover, it can help reduce the number of dropouts, which increases the completion rate in e-learning courses.

Results of this study suggest that in agreement with prior research, students' satisfaction from e-learning is a major factor in students' decision to complete or drop from such courses. Moreover, in contrast to prior correspondence courses and earlier types of e-learning courses, academic locus of control was not found to play a major role in predicting dropouts from e-learning course. Additionally, majority of the demo-

graphics characteristics (gender, age group, residency status, academic major, GPA, and weekly working hours) were not found to be significantly different between completer students and dropout students in e-learning courses. This is also in agreement with prior literature. However, college status and graduating term were found to be significantly different between completer students and dropout students in e-learning courses. These results indicate that students are likely to drop online e-learning courses if they have a lower college status and are in an earlier term of their academic studies. This may well be due to the students' lack of time to invest in successfully completing such courses. Therefore, students that dropout from e-learning course may register again and will successfully complete the course in a later term. It may well be that their decision to drop is an educated and calculated one to ensure a higher grade in the course, or just to attempt to register for the same course with another professor in the following term that may ensure a higher perceived level of satisfaction, which in turn may yield a higher grade. Diaz (2002) also noted this same issue by stating that "…online students who drop a class may do so because it is the right thing to do… students can benefit more from a class if they take it when they have enough time to apply themselves to the class work".

Contributions of the Study
The contributions of this study are two fold. First, this study attempts to revitalize the research of dropouts from e-learning courses in the context of online courses. Doing so may inspire additional studies for this complex phenomenon and may spark future studies on factors behind the higher dropout rate in e-learning courses. Additionally, this study attempts to validate findings of prior dropout research on another type of distance education (i.e. online e-learning courses), rather than correspondence and audiocassette distance education as documented previously.

The second major contribution of this study is in its findings and the contribution to the body of knowledge of e-learning courses, by supporting and providing empirical evidence to the importance of measuring students' satisfaction with e-learning as a major driver for the success or failure of such a medium. Results of this study are consistent with prior literature about the impact of students' satisfaction on dropout rate from online e-learning courses. Moreover, as the main goal of any educator and administrator of e-learning program is to improve completion rate and lower dropout rate, this study helps by providing an insight into some of the main factors that may help to reduce students' frustrations and build mechanisms to help reduce dropout rates from e-learning courses.

Limitations and Suggestions for Future Research
The first and most significant limitation of this study is the low sample size for the non-completers group (n=25). As a result, the measure of significance was impacted. Future studies may look at larger sample size; in particular as the growing popularities of online e-learning courses increases, it will be easier to collect data from additional online students.

The second limitation of this study is in the wide range of students' majors that were taking the e-learning courses investigated in this study. Participants of this study include students from majors such as MIS, general management, accounting, finance, and marketing. Moreover, a related limitation of this study is the wide variety and diverse subjects of courses in this study. This is due to the fact that the data collected in this study comes from a college of business administration, where the range of students' majors as well as the range of subject courses was large. Consequently, the measure of academic locus of control may have been somewhat distorted as it was documented that business students tend to have a more internal locus of control than students in other disciplines. Future studies may need to concentrate on measuring the factors within one or two closely related subjects to add reliability to the findings of this study.

Additional research is needed to uncover all of the factors that impact dropout from online e-learning courses. Such studies should attempt to focus on target students that dropout and complete online e-learning courses, rather than other types of distance education. Moreover,

additional studies should use a less diverse population of courses and students' majors than the current study, in order to provide a better understanding of the key factors that drive students to dropout from online e-learning courses.

REFERENCES

Alavi, M., Wheeler, B., & Valacich, J. (1995). Using IT to reengineer business education: An exploratory investigation of collaborative telelearning. *MIS Quarterly, 19*(3) 293-311.

Ariwa, E. (2002). Evaluation of the information, communication and technology capabilities and online learning. *USDLA Journal, 16*(11), 59-63.

Billings, D. M. (1988). A conceptual model of correspondence course completion. *American Journal of Distance Education, 2*(2) 23-35.

Bures, E. M., Abrami, P. C., & Amundsen, C. (2000). Student motivation to learn via computer conferencing. *Research in Higher Education, 41*(5), 593-621.

Chyung, Y., Winiecki, D. J., & Fenner, J. A. (1998). A case study: increase enrollment by reducing dropout rates in adult distance education. *Proceedings of the Annual Conference on Distance Teaching & Learning,* Madison, WI.

Carter, V. (1996). Do media influence learning? Revisiting the debate in the context of distance education. *Open Learning, 11*(1), 31-40.

Diaz, D. (2002). Online drop rates revisited. *Technology Source, May/June 2002 [Online].* Available: http://ts.mivu.org/default.asp?show=article&id=981

Dille, B., & Mezack, M. (1991). Identifying predictors of high risk among community college telecourse students. *The American Journal of Distance Education, 5*(1), 24-35.

Dirkx, J. M., & Jha, L. R. (1994). Completion and attrition in adult basic education: A test of two pragmatic prediction models. *Adult Education Quarterly, 45*(1), 269-285.

Dollinger, S. J. (2000). Locus of control and incidental learning: an application to college student success. *College Student Journal, 34*(4), 537-540.

Fjortoft, N. P. (1995). Predicting persistence in distance learning programs. *Paper presented at the mid-western educational research meeting,* Chicago, Il.

Fowler, F. J. (1993). *Survey research methods.* Newbury Park, CA: Sage.

Fredericksen, E., Pickett, A., Shea, P., Pelz, W., & Swan, K. (2000). Student satisfaction and perceived learning with on-line courses: principles and examples from the SUNY learning network. *Journal of Asynchronous Learning Networks, 4*(2), 7-41.

Harris, R. M., & Salomone, P. R. (1981). Toward an abbreviated internal-external locus of control scale. *Measurement and Evaluation in Guidance, 13*(4), 229-234.

Hiltz, R. S., & Johnson, D. W. (1990). User satisfaction with computer-mediated communication systems. *Management Science, 36*(6), 739-765.

Kember, D. (1989a). A longitudinal-process model of dropout from distance education. *Journal of Higher Education, 60*(3), 278-301.

Kember, D. (1989b). An illustration, with case studies, of a linear-process model of drop-out from distance education. *Distance Education, 10*(2), 196-211.

Lefcourt, H.M. (1991). Locus of control. In J.P. Robinson, P.R. Shaver, & L.S. Wrightsman (Eds.), *Measures of Personality and Social Psychological Attitudes* (pp. 413-499). San Diego: Academic Press.

Levy, Y. (2003). A study of learners' perceived value and satisfaction for implied effectiveness of online learning systems. Dissertation Abstracts International, 65(03), 1014A. (UMI No. AAT 3126765). Retrieved Oct 13, 2004, from Digital Dissertations database.

Levy, Y., & Murphy, K. E. (2002). Toward a value framework for online learning systems, *Proceeding for the 35th Hawaii International Conference on System Sciences (HICSS-35),* Big Island, Hawaii.

McLaren, C. H. (2004). A comparison of student persistence and performance in online and classroom business statistics experiences. *Decision Sciences Journal of Innovative Education, 2*(1), 1-10.

Munro, J. (1987). The discourse of dropout in distance education: A theoretical analysis. *Paper presented at the Annual Conference of the Canadian Association for the Study of Adult Education.*

Parker, A. (1999). A study of variables that predict dropout from distance education. *International Journal of Educational Technology, 1*(2), 1-12.

Parker, A. (2003). Identifying predictors of academic persistence in distance education. *USDLA Journal, 17*(1), 55-62.

Piccoli, G., Ahmad, R., & Ives., B. (2001). Web-based virtual learning environments: A research framework and a preliminary assessment of effectiveness in basic IT skills training. *MIS Quarterly. 25*(4), 401-426.

Richardson, A. G. (1995). Academic locus of control of university students: A Caribbean case study. *Perceptual and Motor Skills, 81*(3), 1388-1390.

Richardson, J. C., & Swan, K. (2003). Examining social presence in online courses in relation to students' perceived learning and satisfaction. *Journal of Asynchronous Learning Networks, 7*(1), 68-88.

Rotter, J. (1966). Generalized expectations for internal versus external control of reinforcement. *Psychological Monographs, 80*(1), 1-28.

Rotter, J. (1989). Internal versus external control of reinforcement. *American Psychologist, 45*(4), 489-493.

Sachs, D., & Hale, N. (2003). Pace university's focus on student satisfaction with student services in online education. *Journal of Asynchronous Learning Networks, 7*(2), 36-42.

Shea, P. J., Pickett, A. M., & Pelz, W. E. (2003). A follow-up investigation of "teaching presence" in the SUNY learning network. *Journal of Asynchronous Learning Networks, 7*(2), 61-80.

Sikora, A., & Carrol, D. (2002). *A profile of participation in distance education: 1999-2000.* Research Report, Natl Ctr for Education Statistics. http://www.nces.ed.gov/pubs2003/2003154.pdf.

Straub, D. (1989). Validating instruments in MIS research. *MIS Quarterly, 13*(2), 147-170.

Swan, K., Shea, P., Fredericksen, E. E., Pickett, A. M., & Pelz, W. E., (2000). Course design factors influencing the success of online learning. *Proceedings of WebNet 2000 World Conference on the WWW and Internet,* San Antonio, TX.

Sweet, R. (1986). Student drop-out in distance education: An application of Tinto's model. *Distance Education, 7*(2), 201-213.

Tinto, V. (1975). Dropout from higher education: a theoretical synthesis of recent research. *Review of Educational Research, 45*(1), 89-125.

Thor, L. M., & Scarafiotti, C. (2004). Mainstreaming distance learning into the community college. *Journal of Asynchronous Learning Networks, 8*(1), 16-25.

Trice, A. D. (1985). An academic locus of control scale for college students. *Perceptual & Motor Skills, 61*(3), 1043-1046.

Volkwein, J. F., & Lorang, W. G. (1995). Characteristics of extenders: full-time students who take light credit loads and graduate in more than four years. *A research paper presented in the Association for Institutional Research (AIR) anaual forum,* Boston, MA.

Webster, J., & Hackley, P. (1997). Teaching effectiveness in technology-mediated distance learning. *Academy of Management Journal, 40*(6), 1282-1309.

Whittington, L. A. (1995). Factors impacting on the success of distance education Students of the University of the West Indies: A review of the literature. *Information Analysis.*

Wilkinson, T. W., & Sherman, T. M. (1990). Perceptions and actions of distance educators on academic procrastination. *American Journal of Distance Education, 4*(3), 47-56.

Williamson, D. R., & Creamer, D. G. (1988). Student attrition in 2- and 4-year colleges: application of a theoretical model. *Journal of College Student Development, 29*(3), 210-217.

Xenos, M., Pierrakeas, C., & Pintelas, P. (2002). A survey on student dropout rates and dropout causes concerning the students in the course of informatics of the Hellenic Open University. *Computers & Education, 39*(4), 361-377.

Zielinski, D. (2000). The lie of online learning. *Training, 37*(2), 38-40.

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