

Factors Related to Learner Dropout in Online Learning

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This study reviewed dropout research in online learning, particularly focusing on nontraditional students and examined what progress has been made since Garrison's 1987 review. This study categorized factors identified from literature into student characteristics, student prior skills, external factors, and internal factors, all of which are based on Rovai's persistence model (2003). Current status of dropout studies for adult learners in distance learning is discussed and future research directions are proposed.

Keywords: Dropout/persistence/ retention, distance learning/online learning, framework

The number of adult learners who participate in distance learning has rapidly grown in the last two decades. Distance learning allows adult learners who have employment, family, and/or other responsibilities to update knowledge and skills related to the job by saving travel costs and allowing for a flexible schedule. Moore and Kearsely (2005) indicated that most distance education students are adults between the ages of 25 and 50. According to the results of a survey administered by the National Center for Educational Statistics (NCES) (2001), 56 % of all degree-granting higher education institutions offered distance courses during the 2000-2001 academic year. In 2003, 34% of 1000 representative higher education offered a complete online degree program (Allen & Seaman, 2004).

The number of programs delivered online in a corporate setting has also steadily increased over the last few years. According to the survey results obtained from 526 companies in the United States and Canada (Bersin, 2005), online training continued to grow in 2005 by 25%, and comprised 33 % of all workplace learning. 80 percent of training and human resources managers envisioned that this would increase in 2006 (Bersin, 2005). Sugrue and Rivera (2005) reported that training delivery via technology (or online) increased from 24 percent in 2003 to 27 percent in 2004 in ASTD's broadest sample of organizations, and from 35 percent in 2003 to 38 percent in 2004 in ASTD's sample of large organizations.

Along with its proliferation, high dropout rate in distance learning has been of concern to many organizations. According to Meister (2002), 70 percent of adult learners enrolled in a corporate online program did not complete it. The Corporate University Xchange (2000) indicates that one of the difficult challenges of online learning programs is to retain learners. In a number of studies, there was evidence that a higher percentage of students participating in a distance learning course tend to drop out compared to students in a face-to-face classroom (Hiltz, 1997; Phipps and Merisotis, 1999). Some consider the higher dropout rate in distance learning as a failure while others solicit careful interpretation of the issue because of unique characteristics and situations that online learners have. Diaz (2002) indicated that uncontrollable factors influence dropout decision and high dropout rate is not necessarily indicative of academic non-success. Nonetheless, it is still not easy to explain to corporate executives that dropout rates do not matter (Alexander, 2002), and it is certain that the high dropout issue in online training should be addressed and pertinently dealt with.

Problem Statement and Research Questions

Garrison (1987) reviewed dropout studies in distance education and presented five methodological concerns from those studies: (1) dropout research has been preoccupied with correspondence as the method of distance delivery, (2) few research projects have developed systematic and ongoing approaches to determine associated variables, (3) too much effort has been given to demographic or descriptive surveys without relevant recognition of the inherent complexities, (4) theoretical frameworks pertinent to dropout in distance education have not been established, and (5) there is no conceptual order to guide research in this area. Since Garrison's review, many research studies have focused on determining substantial factors related to dropout in distance learning either empirically or conceptually (e.g., Jun, 2005; O'Connor, Sceiford, Wang, Foucar-Szocki, & Griffin, 2003; Willging & Johnson, 2004) and establishing theoretical frameworks (Cabrera, Castaneda, Nora, & Hengstler, 1992; Kember, 1989; Packham, Jones, Miller, & Thomas, 2004; Rovai, 2003). In particular, Jun (2005) reviewed studies regarding e-dropout and examined the relationship between learner motivation/ demographic characteristics and dropout in corporate e-learning courses. The studies that he used to understand e-dropout, however, are mostly conceptual papers or even opinion papers. In fact, there are few empirical studies about and no systematic approach to how and why adult online learners in organizations dropout.

Accordingly, this study reviewed dropout research in distance learning, particularly focusing on nontraditional

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distance learners who are part-time learners with multiple roles like learners in corporation and examined what progress has been made since Garrison's 1987 review. The ultimate purpose of this study is to propose a revised framework to explain dropout in distance learning and finally to suggest future research direction for learner dropout in corporate online training. Specifically, this study seeks to answer the following questions: (1) What progress has been made in dropout studies since Garrison's 1987 review?; (2) What are the major factors that can explain dropout of non-traditional adult distance learners?; (3) How can the Rovai's existing framework be revised based on the review?

Literature Search and Review Procedures

Previous studies were collected from three major electronic databases in the field of education and social science: ERIC, EBSCO and PsychINFO databases. Because the five terms have been often used to refer to the phenomenon of learner leaving from institutions or courses before completion (i.e., persistence, dropout, attrition, stopout, and retention), all these terms were used to search related studies. Terms to refer to the forms of learning programs delivered online or involving the usage of a computer are numerous as well. Distance learning, online learning and e-learning were used for the search in this study. Because one of the purposes of this study was to examine what progress has been made in dropout research since Garrison (1987) outlined a few problems in this area, the search was limited to journal articles published from 1987 to 2006. Accordingly, 67, 21 and 5 studies from ERIC, EBSCO and PsychINFO respectively were found.

After reviewing the abstracts of these studies, the number of studies to be reviewed was reduced because some were duplicates in the databases, some did not focus on adult learners, and some studies were not pertinent to this study. Because it was difficult to find articles focusing merely on learners in organizations, this study reviewed those studies targeting other adult learners (nontraditional learners) not just in organizations but also in higher education (e.g., part-time doctoral students and college students in distance program, open universities, etc.). Consequently 34 studies were finally reviewed. Of these, 18 studies have focused on identifying factors related to dropout in distance education, so the summary of the 18 studies are organized and presented in Table 1 due to its relevance.

Theoretical Frameworks of Dropout

Several theories and theoretical frameworks have been proposed to explain student dropout. In particular, Tinto's student integration model (1993) and Bean and Metzner's student attrition model (1985) have guided dropout research studies. Tinto (1993) claimed that attrition is a result of interactions between a student and his/her educational environment during the student's stay in a program. He indicated that social integration and academic integration produced stronger student commitment to their institutions and increased their persistence. However, educators who desire to study the persistence of nontraditional students who have different characteristics and nature from traditional students have found that Tinto's model has limited applicability (Rovai, 2003; Bean & Metzner, 1985). Tinto himself indicated that it was necessary to modify his model when used with nontraditional students (Tinto, 1982).

Bean and Metzner (1985) developed a conceptual model for dropout of nontraditional students including academic performance, intent to leave primarily influenced by academic and psychological outcomes, background and defining variables and environmental variables. They asserted that the main difference between the attrition process of traditional and nontraditional students is that nontraditional students are more affected by the external environment than traditional students. However, Bean and Metzner's model is unlikely to be applied for distance learners because there is a significant discrepancy between the definitions of distance learners in general and nontraditional students in the Bean and Metzner's model (Kember, 1989). Kember (1989), therefore, proposed a longitudinal process model of drop-out distance education and made suggestions for testing the model (e.g., developing reliable instruments, conducting both qualitative and quantitative research, etc). Kember's longitudinal model recognizes that social and academic integration of students should be viewed with intervening variables between initial student characteristics/background and persistence, components change over time and students have to confront drop-out decisions several times during lengthy courses. Kember and his colleagues (1991, 1992, 1994) have tested this model in different sets of institutions, courses and students and emphasized the importance of social and academic integration to student progress in distance learning. Since then, a couple of researchers have committed to comparing those previous models, determining advantages and disadvantages, and finally developing a model explaining the process of dropout in a particular population and a learning environment. Cabrera et al. (1992) reviewed the Tinto's and Bean and Metzner's frameworks on dropout, and the results indicated that Tinto's model is more comprehensive and robust while Bean's model accounts for more variance in persistence.

Rovai (2003) proposed a composite persistence model based mainly on the two models to explain dropout in distance learning. The model included two prior-to-admission variables, which are student characteristics and student skills prior to admission, and two after-admission variables, which are external factors (e.g., finances, hours of employment, outside encouragement, etc.) and internal factors (e.g., academic integration, social integration, self-

esteem, interpersonal relationship, study habits, advising, absenteeism, etc.). Rovai's framework is established by a thorough review of the most comprehensive previous frameworks, particularly focusing on nontraditional online learners who have similar characteristics as online learners in organizations. This model was also tested and expanded by Packham et al (2004). This study, therefore, reviewed the literature in light of Rovai's persistence framework.

Factors Related to Learner Dropout in Online Learning Programs

Rovai's composite persistence model (2003) consisted of four factors: learner characteristics; student skills; external factors; and internal factors. The review of previous studies are reviewed based on Rovai's model and summarized in Table 1 at the end of this paper.

Learner Characteristics Prior to the Class

Learner characteristics have been examined and recognized as factors related to student persistence/dropout in many studies, most of which determined the relationship based on extensive literature review or simply described characteristics of dropout within their own context (e.g., Jun, 2005; Meneger-Beeley, 2004; Packham et al., 2004; Brown, 1996). Frequently cited learner characteristics in relation to dropout are age, ethnicity, gender, employment status, and socio-economic group. Packham et al. (2004) described that successful e-learners are typically female, non-higher education qualified, non-employed and aged between 31 and 50. Rovai (2001) found gender-related differences in communication patterns and sense of community and presumed its effect on student persistence in online courses. Jun (2005) found that many individual background variable such as the number of online courses completed, gender, learning hours for the course per week, and hours worked per week were significant to predict learner dropout.

On the contrary, Willging and Johnson (2004) reported that the variables were unable to predict dropouts in a study statistically investigating the relationship between student characteristics and the decision to dropout. They claimed that decision to persist or dropout from an online program is a complex phenomenon that cannot be easily described with quantitative variables, at least not with the demographic variables. Kember and his colleagues (1991, 1992, & 1994) have contended that learner characteristics have only indirect impact on dropout through social and academic variables. Likely, there is no consensus on the influence of learner characteristics on dropout, but it seems agreeable that the influence of learner characteristics is either minor or indirect.

Student Skills Prior to the Class

Rovai (2003) included student skills such as computer literacy, information literacy, time management, reading & writing, and computer-based interaction as influential factors based on the studies identifying skills required for successful distance learning (Cole, 2000; Rowntree, 1995). Factors studied or mentioned in other studies within this category are prior online class experience, literacy, academic profile, study skills, and time management skills (Table 1). Even though Rovai (2003) indicated the meaningfulness of student skills prior to an online class/program, few studies have focused on investigating these factors. Moreover, there is no study that statistically investigates the relationship between those variables and dropout in distance learning. These factors, therefore, need to be further explored in order to be included in the framework.

External Factors

The significance of external factors have been recognized by many researchers and have been included in many proposed frameworks (e.g., Bean & Metzner, 1985; Tinto, 1993; Rovai, 2003; Kember, 1989). Rovai (2003) adopted external factors such as finances, hours of employment, family responsibilities, outside encouragement, opportunity to transfer, and life crisis mainly from Bean and Metzner's model (1985) into his model. In addition, almost all models/studies regarding dropout have considered external factors significant.

As shown in Table 1, external factors most often investigated or identified are time conflict, family issue, financial problem, employment status, and managerial support. Among those, time conflict is the most frequently cited factor (e.g., Packham et al., 2004; Willging & Johnson, 2004; Ivankova & Stick, 2003; O'Connor et al., 2003; Chyung, 2001; Frankola, 2001). Most distance learners are employed and are therefore part-time learners with multiple roles. Time conflict is a problem that distance learners in organizations face, and is a factor that affects the whole process of online learning (from registration to completion or even learning transfer). In studies focusing on nontraditional learners, these external factors have been indicated most important. Nontraditional students tend to blame themselves rather than institutions for problems (Brown, 1996). It is certain that external factors are affecting dropout, however, as a barrier related to online courses they are far more difficult to overcome because they cannot be controlled by the instructor or the program provider (Packham et al., 2004). Tinto (1993) and Rovai (2003) indicated that dropout is certainly related to external factors but must be accelerated by those when internal factors of online programs are not desirable or weak. In other words, external factors are likely to interrelate with internal

factors. Therefore, external factors should be considered with relation to internal factors rather than independently, so that it can be more controllable.

Internal Factors

The previous studies have agreed that there are many internal factors affecting learners' decision to dropout or persist. Tinto (1993) included academic integration, social integration, goal commitment, institutional commitment, and learning community as important internal factors. Bean and Metzner (1985) also addressed many internal factors such as study habits, advising, absenteeism, course availability, program fit, satisfaction, and so forth. In addition, Rovai (2003) expanded the realm of internal factors by including student needs such as clarity of programs, self-esteem, interpersonal relationships, accessibility to service, and identification with school.

In particular, course design issues have been identified by many researchers. After interviewing 24 dropout students, Packham et al. (2004) determined that the amount of coursework and assignments were a critical factor of dropout, and technical problems severely affected student's decision to dropout. Brown (1996) claimed that lack of support from tutors and difficulties in contacting them played an important role in the decisions of dropout. Willing and Johnson (2004) found that assignment level, learning style conflict, lack of interaction, lack of interest, lack of technical support, and learning environment were the reasons why student dropped out. Zielinski (2000) indicated six reasons that cause learners to bail from online training. Three out of the six -- lack of connectedness, learner preference, and poor course design -- were related to internal factors. Likely, many studies have emphasized the importance of course design related factors.

Menager-Beeley (2004), Chyung and her colleagues (1998, 2001), and Jun (2005) have indicated the importance of motivation. Menager-Beeley's study (2004) showed that students who have high task choice values (motivation) can be expected to persist in a class. This study showed the strong relationship between these values and student behavior. In addition, it was found that students with low task values, low prior grades in English, and older students may be more likely to drop out of a web-based course. Chyung and her colleagues (1998, 2001) also indicated that most students who dropped out of an adult distance program expressed their dissatisfaction with the learning environment and indicated a discrepancy between professional or personal interests and course structure. After redesigning the course based on Keller's ARCS (Attention, Relevance, Confidence and Satisfaction) model and the Organizational Elements Model, the study found that the improvement of the motivational appeal had positive effects on learner perceptions toward the learning environment, learning outcomes, and retention rates. Particularly, the dropout rates have decreased from 46% to 22%. By designing the course that can motivate learners, therefore, it is expected that more learners in distance courses will be retained. Jun (2005) found that only attention of ARCS has a significant relationship with adult learner dropout in corporate e-learning.

The Revised Framework of Online Dropout

Based on the review above, the revised model of dropout has been proposed (Figure 1). The significance of the four factors from Rovai's model is supported from many studies with a variety of research methods. However, the structure of the model should be revised, and some of the variables should be dropped due to little evidence of their significance. To be more specific, learner skills are in a grey box because these have found little empirical support in previous studies, and their inclusion can be determined only through relevant further investigation. The external factors are moved between 'prior to' and 'during' the courses because these are affecting student decisions not only during the course but also prior to the course. Adult distance learners drop out of the course due to increased workload or job change that happens during the course, but some learners may drop out of a course even before they start due to such external reasons. In addition, external factors and internal factors are likely to interact with each other. For example, when a learner has a heavy workload and little time for study, they are more likely to dropout of a course when they cannot get feedback or if it is hard to contact the instructors than when they can easily communicate with and get more responses from them. If proper course design and technology are being used, some external problems are likely to be mitigated. So the relationship between internal factors and external factors are expressed as intercorrelation rather than as a one-sided influence. In addition, it appeared that only internal factors would have direct influence on persistence decision, and others have indirect affect through internal factors in Rovai's model. However, many studies have reported that some external factors have been major reasons why adult online learners decided to drop out. Therefore, a direct line from external factors to dropout has been added.

Conclusion

This study attempted to review dropout research in distance learning, to diagnose the current status of the research, and to propose a relevant framework for future research. Since Garrison's 1987 review, dropout researcher in distance education has progressed in that there have been relatively few studies focusing on demographic surveys, the scope of distance delivery methods studied has been expanded, and a couple of theoretical frameworks focusing

on distance learning environment have been proposed so that dropout studies can be guided. As shown in Table 1, however, descriptive studies remain dominant, as well as studies that have used previous literature to determine relevant variables rather than systematic and ongoing approaches. The significance of the four factors from Rovai's model is supported by many studies using a variety of research methods. This review, however, revealed that Rovai's framework needs to be restructured. Some elements in the model were not examined by many research studies, the relationship between external factors and internal factors needs to be redefined, and the external factors should be relocated within the model.

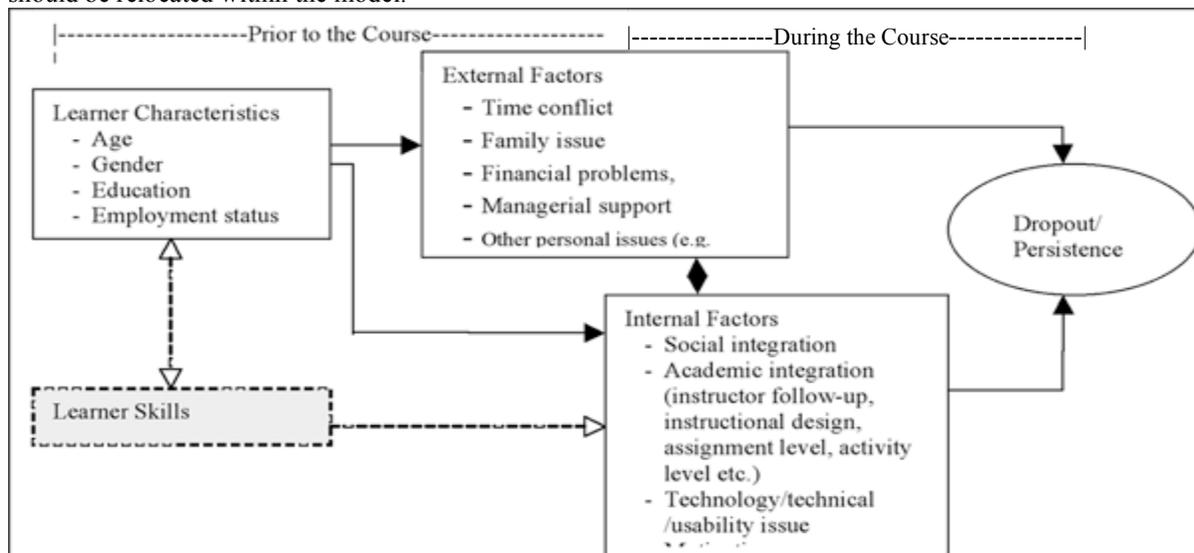


Figure 1. The revised model of dropout from distance learning in organizations.

Implication in HRD

Developing and providing online/ distance learning is a mainstream practice in the field of Human Resources Development (HRD). Due to geographical and time constraints of traditional training, many organizations are employing online training and e-learning and investing a tremendous amount of resources into developing e-learning programs. High dropout rate has concerned many training providers, and retaining online learners has been a challenge (Corporate University Xchange, 2000). For research in HRD, this study can guide further research regarding dropout rates in corporate based online programs by providing the review of related literature and proposing a framework. For practice in HRD, this study can provide HRD managers with several managerial implications. For example, this study found that time conflict was the most frequently cited barrier to persistence in distance learning because most learners are working and studying at the same time. There is no doubt that they do not have enough time for studying. Perhaps companies may have to consider letting learners have a couple of hours off during work days. By doing so, both organizations and learners will benefit (higher completion rate but still no need to send learners off for training). In sum, organizations can have ideas about what they need to do to attain higher completion rates.

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Table 1
Selected Studies of Dropout Learners in Distance Learning Programs

Study	Study type	Analytical method	Subjects	Enrollment Status	Factors reviewed/investigated			
					Student Characteristics	Student Skills	External Factors	Internal Factors
Jun (2005)	Empirical	Exploratory factor analysis Logistic Regression	259 corporate learners		Individual background (Gender, etc)*			Technology environment Academic integration Social integration Motivation (Attention*)
Meneger-Beeley (2004)	Empirical	Descriptive Correlation	59 college students	Non specified	Grade Gender Ethnicity Age	Prior online class experience Literacy		Motivation: task value*
Packham et al. (2004)	Empirical	Descriptive (Qualitative & Quantitative)	20 college students (U.K.)	Part-time (degree)	Age Gender Employment status	Academic profile Readiness for the course	Family situation Nature of job Available study time	Technical issue Assessment Usability of the learning system Design of the course
Willing & Johnson (2004)	Empirical	Descriptive Correlation Logistic Regression	28 learners (U.S.)	Part-time (degree)	Gender Age Ethnicity GPA Location Occupation		Financial difficulties Lack of time Schedule conflict Family problem Job responsibility change Company support	Assignment level Learning style conflict Lack of interaction Lack of interest Lack of technical support Learning environment
Ivankova & Stick (2003)	Conceptual	Literature review		Doctoral degree		Prior experience with post-secondary	Finance and employment Family support and encouragement Academic advisor	Self-motivation and personal goal Learning and access to materials Program policies Learning culture Social integration
O'Connor et al. (2003)	Empirical	Descriptive (Qualitative & Quantitative)	13 managers 375 learners (U.S.)	Part-time corporate learners (non-degree)	Gender * Age Physical place Company size Education		Mandatory company completion policy Time conflict Organization support	Learning interaction Instructors' follow-up Instructional design and learning style Personal motivation
Chyung (2001)	Empirical Intervention	Descriptive		Part-time/full-time (degree)			Professional goals Time constraints Health problem	Technology problems (software incompatibility) Learner motivation
Frankola (2001)	Conceptual	Literature review					Lack of time Management oversight	Technology problems Learning preferences Poorly designed courses Inexperienced instructors Social factor Lack of motivation

(table continues)

Table 1 (*continued*)

Study	Study type	Analytical method	Subjects	Enrollment Status	Factors reviewed/investigated			
					Student Characteristics	Student Skills	External Factors	Internal Factors
Selvam (1999)	Empirical	Descriptive	100 learners (India)	Not specified	Psychological factors	Psychological factors	Family factors Occupational factors Health factors	Social factors Educational factors Institutional factors
Parker (1999)	Empirical	Descriptive Correlation Stepwise regression Discriminant analysis	94 college students (U.S.)	Not specified			Financial assistance	Locus of control
Shin & Kim (1999)	Empirical	Descriptive Correlation Path analysis Logistic Regression	1,994 learners (Korea)	Part-time (degree)		Planned learning	Job load* Study time*	Face-to-face activities Willingness Social integration
Brown (1996)	Empirical	Descriptive Correlation	148 learners (Australia)	Part-time/ full-time	Age Gender Socio-economic group Ethnicity Physical distance from University	Study skills Time management	Family issues Financial issues Change of employment	Difficulty of course Instructors (insufficient support from and difficulties in contacting them) Isolation Course expectation Inadequate materials
Garland (1993)	Anecdotal	Ethnoscience approach Field note	University students	Not specified		Time management	Lack of support Lack of time Cost Multiple roles	Problems with institutional process Problems with course scheduling Technical assistance Lack of clear goal Learning style Epistemological issues
Kember et al. (1992, 1994)	Empirical	Factor analysis	1060 students (Hong Kong)	Not specified	Gender, age, Years of working experience, salary, marital status, education (indirect)		Emotional encouragement External attribution	Academic accommodation Academic incompatibility
Eisenberg & Dowsett (1990)	Empirical	Partial order structure analysis	445 Open University Students	Not specified	Occupation* Education Gender Age	Previous course performance		
Kember (1989)	Conceptual	Literature review	(Hong Kong)		Characteristics: individual, family & home, work, educational		Work environment/ integration	Goal commitment: intrinsic or extrinsic Academic & social environment/ integration

Note. * statistical significance found.