

## Factors Influencing Adult Learners' Decision to Drop Out or Persist in Online Learning

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### ABSTRACT

The number of adult learners who participate in online learning has rapidly grown in the last two decades due to online learning's many advantages. In spite of the growth, the high dropout rate in online learning has been of concern to many higher education institutions and organizations. The purpose of this study was to determine whether persistent learners and dropouts are different in individual characteristics (i.e., age, gender, and educational level), external factors (i.e., family and organizational supports), and internal factors (i.e., satisfaction and relevance as sub-dimensions of motivation). Quantitative data were collected from 147 learners who had dropped out of or finished one of the online courses offered from a large Midwestern university. Dropouts and persistent learners showed statistical differences in perceptions of family and organizational support, and satisfaction and relevance. It was also shown that the theoretical framework, which includes family support, organizational support, satisfaction, and relevance in addition to individual characteristics, is able to predict learners' decision to drop out or persist. Organizational support and relevance were shown to be particularly predictive. The results imply that lower dropout rates can be achieved if online program developers or instructors find ways to enhance the relevance of the course. It also implies that adult learners need to be supported by their organizations in order for them to finish online courses that they register for.

### Keywords

Adult dropout/retention/persistence, Online/distance learning, Theoretical framework for online dropout

### Introduction

Distance learning allows adult learners who have employment, family, and/or other responsibilities to update knowledge and skills related to their job by saving travel costs and allowing a flexible schedule. Moore and Kearsely (2005) indicated that most distance education students are adults between the ages of 25 and 50. The number of programs for adult learners delivered online in corporate settings as well as in higher education has steadily increased over the last few years. According to the results of a survey administered by the National Center for Educational Statistics (NCES), 56 percent of all degree-granting higher education institutions offered distance courses during the 2000–2001 academic year (Waits & Lewis, 2003). In 2003, 34 percent of 1000 representative higher education institutions offered a complete online degree program (Allen & Seaman, 2004). In addition, Bersin (2005) indicated that online learning continued to grow in 2005 by 25 percent, and comprised 33 percent of all workplace learning. Sugrue and Rivera (2005) reported that training delivery via technology (or online) increased from 35 percent to 38 percent in large organizations, and from 24 percent to 27 percent in relatively smaller organizations from 2002 to 2003.

In spite of the growth in online learning, high dropout rates have been of concern to many organizations and higher education institutions. According to Meister (2002), 70 percent of adult learners enrolled in a corporate online program did not complete it. The Corporate University Xchange (2000) indicated that one of the difficult challenges of online programs is to retain learners. A number of studies have shown that a higher percentage of students participating in an online course tend to drop out compared to students in a face-to-face classroom (Hiltz, 1997; Phipps & Merisotis, 1999). Some consider the higher dropout rate in distance learning a failure while others advise careful interpretation of the issue because of unique characteristics and situations that online learners have. Diaz (2002) indicated that uncontrollable factors influence dropout decisions and a 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 issue of high dropout rates in online training should be addressed and dealt with.

Several theories and theoretical frameworks have been proposed to explain why students drop out. 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 students' 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 nontraditional students who drop out that includes 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 dropout 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, that components change over time, and that students have to make dropout decisions several times during lengthy courses. Kember, Lai, Murphy, Siaw, and Yuen (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 dropping out in a particular population and learning environment. Cabrera, Castaneda, Nora, and Hengstler (1992) reviewed Tinto's and Bean and Metzner's dropout frameworks, and the results indicated that Tinto's model is more comprehensive and robust while Bean and Metzner's model accounts for more variance in persistence.

Rovai (2003) proposed a persistence model to explain factors affecting a learner's decision to drop out of online learning. The model included two prior-to-admission variables and two after-admission variables. The two prior-to-admission variables are student characteristics and student skills prior to admission. The two after-admission variables are external factors (e.g., finances, hours of employment, outside encouragement, etc.) and internal factors (e.g., academic integration, social integration, self-esteem, interpersonal relationships, study habits, advising, absenteeism, etc.). Rovai's framework is established by a thorough review of the most comprehensive previous frameworks (i.e., Tinto's student integration model [1993] and Bean & Metzner's student attrition model [1985]), particularly focusing on nontraditional online learners who have characteristics similar to adult learners in organizations. This model was also tested and expanded by Packham, Jones, Miller, and Thomas (2004).

Park (2007) reviewed studies that focused on identifying factors affecting non-traditional and non-degree online program students who drop out and proposed a framework based on Rovai's model for understanding adult dropouts (Figure 1). Based on the review, she indicated that the significance of the four factors from Rovai's model is supported from many studies with a variety of research methods. However, she suggested revision of the structure of the model and elimination of some of the variables. Specifically, 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 affect student decisions not only during the course but also prior to the course. Adult distance learners may 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 because of such external reasons. In addition, external factors and internal factors are likely to interact with each other. For example, when learners have a heavy workload and little time for study, they are more likely to drop out of a course when they cannot get feedback or if it is hard to contact the instructors than when they can easily communicate with them and get more responses. 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 inter-correlation rather than as a one-sided influence. In addition, it appeared that only internal factors would have a direct influence on persistence decision, and others have an indirect affect through internal factors in Rovai's model. However, many studies have reported that some external factors have been major reasons

why online learners decided to drop out, particularly in relation to adult distance learners. Therefore, a direct line from external factors to dropout/persistence has been added.

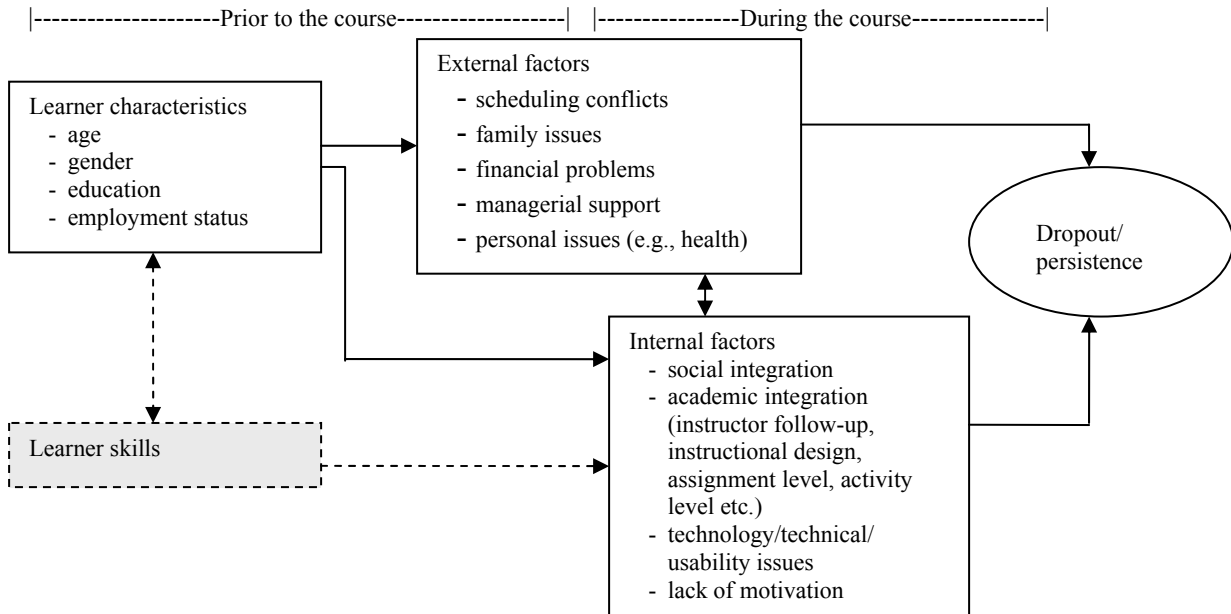


Figure 1. Theoretical framework for adult dropout in online learning (Park, 2007)

Even though numerous studies have tried to identify factors affecting learners' decision to drop out, only a dozen research studies have empirically explored this issue, and no consensus has been reached for which factors have definite influences on the decision (Park, 2007). Although Park and Choi (2007) presented a research study investigating the effects of individual characteristics, external factors, and internal factors on non-traditional adult learners' decision to drop out, the study was limited in that the sample size was too small ( $n = 47$ ) so that the results could hardly be reliable. In addition, relevance, one of the most crucial motivational factors considered to affect adult learners' decision to drop out, was omitted.

Accordingly, the purpose of this study was to identify meaningful factors affecting learners' decision to drop out of online courses and ultimately to shed light on how we can retain students in online courses by involving a significant number of research participants and adding meaningful factors. Particularly, this study focused on the three main categories: individual characteristics, external factors, and internal factors. To be more specific, age, gender, educational background, and employment status were chosen as individual characteristics because these four are the most often cited factors in previous studies (Park, 2007). External factors consist of family support and organizational support. Most adult learners have many responsibilities for their family as well as for their job, and these two are key factors affecting adult learners' decision to drop out of online courses (Park, 2007). Motivation is one of the most frequently studied variables in relation to dropout (Chyung, 2001; Chyung, Winiecki, & Fenner, 1998; Doo & Kim, 2000; Jun, 2005; Levy, 2007; Menager-Beeley, 2004). In particular, relevance and satisfaction are the sub-dimensions of motivation that have frequently been studied (Chyung et al., 1998; Doo & Kim, 2000; Levy, 2003, 2007; Shea, Pickett, & Pelz, 2003) and are known to be highly correlated with various course-related issues such as instructional design, organization of the online courses, instructors' facilitation, and interaction (Shea et al., 2003). This study could not include other internal factors such as social integration, academic integration, and technology issues shown in the above framework because the courses investigated in this study were developed before conducting this study, and the researchers did not have access to the course contents and were not involved with the design and development process.

Therefore, the research questions used in this study were as follows:

1. Do the dropouts and the persistent learners of online courses show differences in their individual characteristics (i.e., age, gender, and educational background), external factors (i.e., family support and organizational support), and internal factors (i.e., motivation in terms of satisfaction and relevance)?

2. What factors are significant to predict learners' decision to drop out of online courses?

## Methods

### Population and sample

The target population of this study was non-traditional adult learners who enroll in job-related online courses offered by a large Midwestern university. Since November 2002, 18 distance courses were offered, with 378 learners registering and 204 learners completing (dropout rate = 46.0%). Since 2005, when the current learning system was established, three online courses were offered three times, and 107 out of 234 participants completed the courses (dropout rate = 54.2%). The increasing dropout rate has become a concern to the program providers as well as to many other distance programs and institutions.

The sample for this study was 147 adult learners who have either completed or dropped out of one of the three online courses offered between fall 2005 and summer 2007 and who agreed to participate in this study. Of the 147 participants, 98 (66.7%) were persistent learners while 49 (33.3%) were dropouts; 105 (71.4%) were female while 42 (28.6%) were male. About half of the participants were between 30 and 39 years old (73 participants, 49.7%) and had some college education (79 participants, 53.7%), as shown in Table 1.

Table 1. Participants' demographic information

Demographic variables		Persistent	Dropout	Total
Gender	Female	73 (74.5)	32 (65.3)	105 (71.4)
	Male	25 (25.5)	17 (34.7)	42 (28.6)
Age	20–29	14 (14.3)	13 (26.5)	27 (18.4)
	30–39	53 (54.1)	20 (40.8)	73 (49.7)
	Over 40	31 (31.6)	16 (32.7)	47 (32.0)
Education	High school	37 (37.8)	17 (34.7)	54 (36.7)
	College	50 (51.0)	29 (59.2)	79 (53.7)
	Graduate or higher	11 (11.2)	3 (6.1)	14 (9.5)
Class	1	9 (9.2)	12 (24.5)	21 (14.3)
	2	38 (38.8)	16 (32.7)	54 (36.7)
	3	51 (52.0)	21 (42.9)	72 (49.0)

NOTE (%)

### Instrumentation

Family support and organizational support were measured by six-item, five-point Likert scales. Sample items from the family support measure are “My family understands me very well even though I spend little time with them because of online courses” and “My family is proud of me when I learn to improve my job performance.” Sample items from organizational support measure are “My organization is willing to reduce my workload when I need training for my job” and “My supervisor shows interest in my job-related learning.” The measures were developed by the researchers and reviewed by another researcher who has expertise in measurement. These were also pilot tested with former learners who finished online courses offered from the same department. Consequently, Cronbach's alpha scores for family and organizational support were .78 and .83, respectively.

Items used to measure satisfaction and relevance were originally based on Keller's (1987) Instructional Materials Motivation Survey (IMMS). This study did not use Keller's Course Interest Survey (CIS), which is also designed to measure motivation in a specific course because the IMMS has been extensively examined for reliability while the CIS has been used by only a few studies (Gabrielle, 2003). Word choice and the number of items were slightly different from those in the original IMMS because of the need to be more specific for this study. Sample items to measure satisfaction are “It was a pleasure to work on this type of instruction” and “I want to receive this type of instruction again for my job improvement.” Previous studies found that these items had a Cronbach's alpha of 0.86 (Choi & Johnson, 2005 & 2007). This study found Cronbach's alpha of these items is .90. Sample items to measure

relevance are “The content of this course is relevant to my interest,” “There are explanations and examples of how people use the knowledge,” and “I could relate the content of this course to things that I have seen, done, or thought about in my own life.” Cronbach’s alpha of these items obtained from this study is .87.

### Data collection and analysis

Quantitative data from a survey questionnaire consisted of learners’ age, gender, and educational level, their perceptions of family support and organizational support, and motivation in terms of satisfaction and relevance. Participation in this study was solicited and data were collected via email because of participants’ geographic locations. The researcher sent an email to the 234 participants registered to introduce the purpose of this study and to solicit their participation. After sending the message three times, 161 learners showed interest in participating in this study. The researchers then sent an online survey to them. Finally 149 submitted responses, but only the data from 147 could be used for this study because two persons did not answer most of the questions.

The answers to the research questions for this study were reached using several statistical tools. The data to answer the first research question were analyzed by descriptive statistics, chi-square, and multivariate analysis of variance (MANOVA). Chi-square was used to determine the differences in the individual characteristics between the two groups in this study; that is, dropouts and persistent learners. MANOVA is used to analyze a dependence relationship represented as the differences in a set of dependent measures across a series of groups (Hair, Black, Babin, Anderson, & Tatham, 2006). In this study it was used to determine the differences between the two groups because this study used multi-dependent variables. Two-way factorial design was employed to control the effect of the course as well when examining group differences in family support, organizational support, and motivation in terms of satisfaction and relevance. Learners may show different perceptions and/or motivation depending on the course for which they register. The second research question was answered by logistic regression analysis. This is a specialized form of regression and is formulated to predict and explain a two-group categorical variable (Hair et al., 2006).

## Results

### Research question 1

Table 1 shows the individual characteristics of persistent and dropout learners. Females made up 74.5 percent of persistent learners and 65.3 percent of the dropouts. A significant portion of learners ranged from 30 to 39 years of age (54.1% and 40.8%, respectively) and had a college degree (51.0% and 59.2%, respectively) in both groups. Even though more learners in the dropout group were between 20 and 29 years old (26.5%) than in the persistent group (14.3%), the difference was not statistically significant ( $\chi^2 [2, 147] = 3.84, p = .147$ ). Overall, statistical significances in differences of individual characteristics were not found ( $\chi^2 = 1.35 \sim 3.84, p = .147 \sim .501$ ).

Table 2 presents perceptions of family support, organizational support, satisfaction, and relevance by group. Overall, the persistent group showed higher means in perceptions of family and organizational support and higher means in satisfaction and relevance than the dropout group. Table 2 also showed the means of perceptions of dependent variables by class. Learners who registered for the first class showed the biggest mean differences between the two groups. In the first class, the mean differences in the four dependent variables between the two groups were 5.93, 9.30, 7.11, and 5.78 respectively. The mean differences in the second and third classes were smaller than those in the first class.

Table 2. Means and SDs of persistent and dropout learners by class

Dependant variables	Class	Persistent group			Dropout group			Mean differences
		<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	
Family support	1	9	27.22	5.47	12	21.29	5.27	5.93
	2	38	26.62	4.99	16	23.63	6.70	2.99
	3	51	26.49	5.11	21	24.50	5.53	1.99
	Total	98	26.61	5.04	49	23.43	5.90	3.18

Organizational support	1	9	27.22	3.40	12	17.92	2.22	9.30
	2	38	25.70	4.76	16	17.91	3.70	7.79
	3	51	26.42	5.35	21	19.02	2.57	7.40
	Total	98	26.21	4.96	49	18.39	2.91	7.62
Satisfaction	1	9	23.44	1.01	12	16.33	4.33	7.11
	2	38	24.61	2.14	16	21.69	5.08	2.92
	3	51	27.88	2.89	21	24.48	2.60	3.40
	Total	98	26.20	3.06	49	21.57	5.07	4.63
Relevance	1	9	24.78	1.64	12	19.00	4.33	5.78
	2	38	26.13	2.16	16	23.81	1.52	2.32
	3	51	28.63	2.55	21	25.62	2.09	3.01
	Total	98	27.31	2.72	49	23.41	3.72	3.90

The results from MANOVA are presented in table 3. The interaction effects of satisfaction and relevance across groups by class were statistically significant, and  $F(2, 147) = 3.58, p < .05$ , and  $F(2, 147) = 3.62, p < .05$ , respectively. As shown in figures 2 and 3, the results in the first class showed larger mean differences between the two groups, and this observation could be confirmed from Table 2. The interaction effect is deemed ordinal because the lines depart from parallel but never cross in a significant amount (Hair et al., 2006). Because the interaction effect is deemed significant but ordinal, the analysis of the main effects for the differences across the groups could proceed. The main effects of the group on the dependent variables were statistically significant ( $F[1, 147] = 11.82, p < .001$ ,  $F[1, 147] = 87.70, p < .001$ ,  $F[1, 147] = 54.77, p < .001$ , and  $F[1, 147] = 58.70, p < .001$ , respectively). In other words, dropouts and persistent learners perceived differently the level of family support and organizational support that they had received and showed different levels of motivation in terms of satisfaction and relevance. Lastly, the main effects of the class on the dependent variables were analyzed. The results indicated that learners showed different levels of satisfaction and relevance according to the class that they registered for ( $F[2, 147] = 35.24, p < .001$ , and  $F[2, 147] = 36.49, p < .001$ , respectively). In sum, the results showed that the persistent group and the dropout group showed differences in their perception of family support and organizational support and in the level of motivation in terms of satisfaction and relevance. In addition, learners showed different levels of motivation depending on the class for which they registered.

Table 3. Differences of participants' perceptions of family support, organizational support, satisfaction, and relevance

	Dependent	Type III SS	df	MS	F	p
Group (dropout/persistent)	Family	339.87	1	339.87	11.82	.000***
	Organization	1711.84	1	1711.84	87.70	.001***
	Satisfaction	514.99	1	514.99	54.77	.000***
	Relevance	351.87	1	351.87	58.70	.000***
Class	Family	23.52	2	11.76	.41	.560
	Organization	22.76	2	11.38	.58	.665
	Satisfaction	662.73	2	331.36	35.24	.000***
	Relevance	437.57	2	218.79	36.49	.000***
Group * Class	Family	59.34	2	29.67	1.03	.700
	Organization	13.98	2	6.99	.36	.359
	Satisfaction	67.41	2	33.70	3.58	.030*
	Relevance	43.45	2	21.73	3.62	.029*
Error	Family	4055.49	141	28.76		
	Organization	2752.28	141	19.52		
	Satisfaction	1325.94	141	9.40		
	Relevance	845.21	141	5.99		

\* $p < .05$ , \*\* $p < .01$  \*\*\* $p < .001$

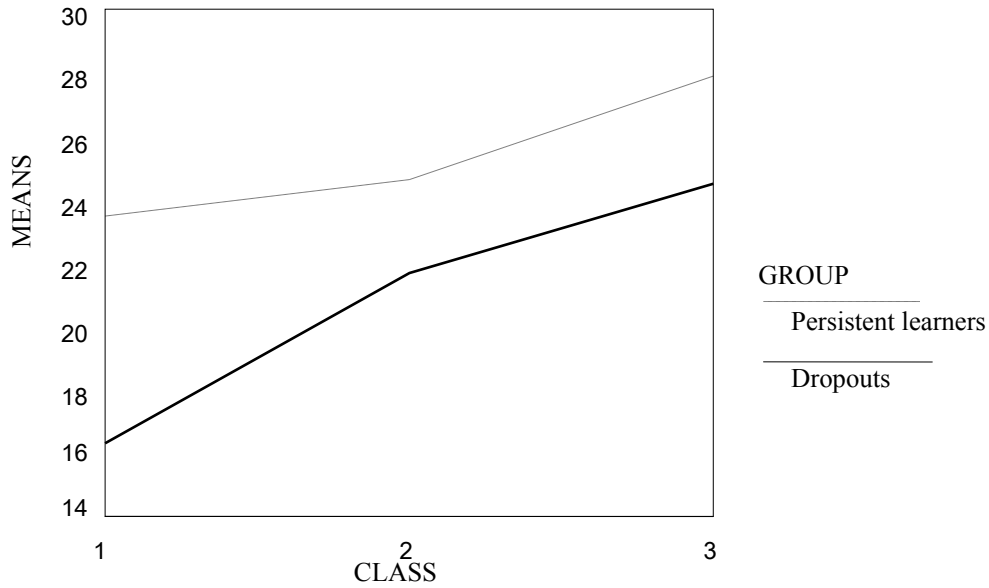


Figure 2. Estimated marginal means of satisfaction

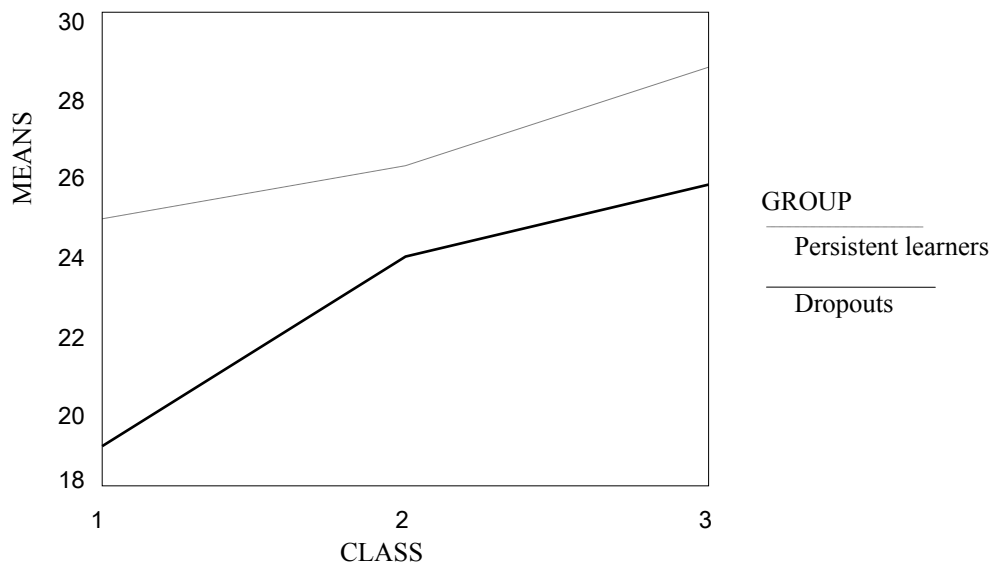


Figure 3. Estimated marginal means of relevance

### Research question 2

Logistic regression analysis was used to determine how well the four variables (family support, organizational support, satisfaction, and relevance) could predict learners' decisions to drop out, identify individual characteristics, and determine which factors are most significant to explain the decision. Individual characteristics were entered in the first step because they are what learners bring with them to the class. Other variables measuring learners' perceptions of family support and organizational support and motivation in terms of satisfaction and relevance then were entered in the second step in order to determine how these variables predict learners' decision to drop out or persist beyond their individual characteristics.

Table 4 presents the predictability of the proposed model. The result showed that the model correctly classified 90.8 percent of the persistent learners and 87.8 percent of the dropout learners, for an overall accuracy of 89.8 percent and is acceptable to predict adult learners' decision to drop out of online courses ( $\chi^2[11, 147] = 111.59, p < .001$ , Nagelkerke  $R^2 = .74$ ).

Table 4. Classification table of the proposed logistic regression model

Observed	Predicted		
	Persistent	Dropout	Percentage correct
Persistent	89	9	90.8
Dropout	6	43	87.8
Overall percentage			89.8

Table 5 represents the logistic regression coefficient (B), standard error (S.E.), Wald test, and odds ratio (Exp [B]) for each of the predictors. When entering demographic information, including the class for which learners register in the first step, there was no significant predictor. In the second step, however, organizational support and relevance turned out to be significant predictors in addition to the class. The class was insignificant in the first step and turned out to be significant in the second step because of the interaction between the class and the group. Based on the results obtained here, it can be concluded that learners' perceptions of organizational support and relevance are significant predictors to learners' decision to drop out or persist in an online course. It can be interpreted that online learners' decision to drop out or persist is related to the class for which they register. It also implies that learners are more likely to drop out of an online course when they perceive that the organization does not support their learning and the course is not related to their own lives.

Table 5. Logit coefficients and Wald statistics of the proposed logistic regression model

Variables	Step 1					Step 2				
	B	S.E.	Wald (df)	p	Exp (B)	B	S.E.	Wald (df)	p	Exp (B)
Age			1.405 (2)	.495				1.273 (2)	.529	
Age (1)	.219	.546	.161 (1)	.688	1.245	-.561	1.090	.265 (1)	.607	.571
Age (2)	-.369	.457	.651 (1)	.420	.692	-.986	.880	1.257 (1)	.262	.373
Gender	-.347	.401	.750 (1)	.387	.707	.068	.690	.010 (1)	.922	1.070
Education			1.628 (2)	.443				1.889 (2)	.389	
Education (1)	-.456	.742	.377 (1)	.539	.634	-1.000	1.216	.677 (1)	.411	.368
Education (2)	.333	.392	.724 (1)	.395	1.396	.494	.662	.558 (1)	.455	1.639
Class			3.013 (2)	.222				5.936 (2)	.051	
Class (1)	.872	.573	2.315 (1)	.128	2.393	-1.275	1.207	1.117 (1)	.291	.279
Class (2)	-.098	.440	.049 (1)	.824	.907	-2.041	.838	5.932 (1)	.015*	.130
Family support						.054	.071	.586 (1)	.444	1.056
Organizational support						-.461	.103	20.219 (1)	.000***	.631
Satisfaction						-.049	.116	.179 (1)	.672	.952
Relevance						-.528	.197	7.213 (1)	.007**	.589
Constant	-.566	.575	.969(1)	.325	.568	23.851	5.578	18.286 (1)	.000	2.320

\* $p < .05$ , \*\*  $p < .01$  \*\*\* $p < .001$

## Conclusions

This study aimed to determine whether or not there were differences between dropouts and persistent learners in online courses in their individual characteristics, the perceptions of family support and organizational support, and the level of motivation (i.e., satisfaction and relevance). This study also intended to find factors to predict dropouts and persistent learners in online courses to help stakeholders associated with online courses for adult learners find ways to lower the high dropout rates.

Previous studies have reached no consensus on the influence of learner characteristics on adult learners' decision to drop out of online courses. Some reported that learner characteristics have significant influence on the decision (Brown, 1996; Jun, 2005; Meneger-Beeley, 2004; Osborn, 2001; Packham et al., 2004), while others claimed those characteristics have only minor or indirect effect (Kember et al., 1992, & 1994; Willging & Johnson, 2004). This study added additional evidence for the latter by showing that the persistent learners did not differ from the dropouts in their individual characteristics. In other words, learners' age, gender, and educational level did not have a significant and direct effect on the dropout decision. Although the result does not claim that individual characteristics should be ignored, it can be concluded that individual characteristics have little influence on the decision to drop out and thus can be considered as trivial.

External factors such as organizational supports, financial problems, and time constraints have been known to be crucial obstacles to adults' participation in learning because adult learners are associated with various roles in their lives (Darkenwald & Merriam, 1982; Johnstone & Rivera, 1965). It is true not only in traditional adult learning programs but also in online learning programs. Willging and Johnson (2004) claimed that external factors such as family issues, lack of organizational support, changing job, and workload are the main factors affecting the decision to drop out of online courses. Greer, Hudson, and Paugh (1998) emphasized family and peer support for success of online learners. Rovai (2003) also emphasized the effect of nonschool factors that conflict with academic life on students' decision to drop out. Although these studies have already claimed the influence of external factors on the dropout decision, these studies are limited in that the first two used only a limited number of subjects and the third one was based only on conceptual analysis. Accordingly, the results were hardly generalizable to learners in different environments, and additional empirical evidence was needed to support the contention. This study showed that dropouts were significantly different from persistent learners in external factors (i.e., family support and organizational support), and the results of this study are consistent with those of previous studies.

Adult learners are more likely to drop out of online courses when they do not receive support from their family and/or organization while taking online courses, regardless of learners' academic preparation and aspiration. Internal factors such as course design strategies and learners' motivation should be prioritized at the course development stage in order to make the course participatory and interesting and to keep learners engaged. Once the course is launched and in progress, however, course administrators and instructors should consider external factors that might interrupt learners' participation and persistence. It would be difficult for them to control the external factors. However, it is important to consider learners' situation while managing or maintaining the course so that learners can get help if needed. In the event that an instructor knows that learners are not receiving enough support from their family and organization, he/she might help the learners stay in the course by paying extra attention, using appropriate motivational strategies, and providing additional internal support. In addition, course administrators and instructors need to inform learners' family and organization of the advantages of the course in order to induce their supports. This study concludes that instructional designers should systematically analyze external factors surrounding learners and use the analysis results to initiate learning and motivate learners so that the high dropout rate can be decreased. The results of this study support the significance of those external factors that are easily overlooked by instructional designers.

This study also showed that dropouts had significant differences in perceptions of learner satisfaction and relevance from persistent learners. In other words, learners are less likely to drop out when they are satisfied with the courses, and when the courses are relevant to their own lives. In agreement with prior research (e.g., Levy, 2007; Doo & Kim, 2000), the results suggest that learners' satisfaction with the online course and relevance to learners' job, prior knowledge, and experiences are major factors affecting their decision to drop out or persist. From this result, a course designer or instructor might get insight about how to design the course better. In order to enhance satisfaction as a way to motivate online learners, rewards such as a completion certificate, praise, and promotion should be given to learners. By providing opportunities to apply newly acquired knowledge into real situations, learners can feel that the skills and knowledge obtained from the course are useful and satisfactory and thus they can be motivated to persist in the course. Relevance can be achieved by designing a course that contains learning materials and cases closely related to learners' interests, experiences, goals, and so forth. Keller (1987) suggested that relevance could be established by using learners' experiences, allowing learners to choose learning methods and strategies, and meeting learners' expectations and goals. Online learners can easily lose motivation unless the course is designed to stimulate their active participation and interaction and meet their expectations. Therefore, an online course needs to be designed in ways to guarantee learners' satisfaction and be relevant to learners' needs.

The result from the logistic regression analysis reported the particular importance of organizational support and relevance, in addition to the class for which they registered. Organizational support and relevance were statistically significant predictors of learners' decision to drop out or persist in online courses. The result implies that learners are more likely to decide to drop out when they are not getting organizational support for their learning. Often adult learners should be granted released time from their jobs and given encouragement from peers and/or supervisors to participate in the course. It is apparent that organizational support could be a crucial factor to influence learners' dropout decision. The result also implies that learners who perceive that the course is relevant to their job or life are less likely to make a decision to drop out. Adult learners tend to prefer learning that has a practical purpose to learning for academic purposes only. Therefore, online courses should be designed in ways to allow adult learners to apply their learning to their real lives.

The sample of this study was selected from only one institution in the U.S. Thus, the results from this study may not be generalizable to adult learners in other institutions and/or countries. Further investigation is needed to confirm the generalizability of the results to broader populations. This study includes a limited number of variables even though they were chosen for their importance based on thorough review of the literature. There are many other variables, including two other motivation factors (i.e., confidence and attention), and factors associated with instructional strategies that may affect adult learners' decision to drop out of online learning. Further research, therefore, is needed to involve additional relevant factors and to expand the model to better explain and predict adult learners' decision to drop out of online courses.

## Acknowledgement

This study was supported by the 2008 Hongik University Research Fund.

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