FACTORS AFFECTING M-LEARNERS'COURSE SATISFACTION AND LEARNING PERSISTENCE

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ABSTRACT

This study investigated whether college students' self-efficacy, level of learning strategy use, academic burnout, and school support predict course satisfaction and learning persistence. To this end, self-efficacy, level of learning strategy use, academic burnout, and school support were used as prediction variables, and course satisfaction and learning persistence were used as criterion variables. Subjects were 178 students registered for online and mobile "Culture and Art History" courses in the 2012 second quarter of K cyber university. They participated in an online survey. Multiple regression analysis revealed that self-efficacy and level of learning strategy use positively predicted course satisfaction and learning persistence, and academic burnout negatively predicted course satisfaction and learning persistence. However, school support did not predict either course satisfaction or learning persistence. Accordingly, we suggest that raising self-efficacy and level of learning strategy use, and reducing academic burnout in the learning environment will improve course satisfaction and learning persistence of cyber learners.

KEYWORDS

Self-efficacy, Level of Learning Strategy Use, Academic Burnout, School Support, Course Satisfaction, Learning Persistence

1. INTRODUCTION

The development of information and communication technology, which has overcome the limitations of time and space, has made education possible in a variety of environments. One representative internet-based educational institution is cyber university.

Cyber universities are able to provide educational opportunities to a variety of students such as office workers, people with disability, and school age and adult learners who were prevented from obtaining education. There are variety of students enrolled in cyber universities, such as adult learners who missed their chance to enter the university, as well as enrolled students with special circumstances, such as students from the industry and military bases, Koreans living overseas, and foreigners (Ministry of Education, Science and Technology, Korea Education and Research Information Service, 2011).

In addition, the use of smart phones and the number of domestic mobile unit holders has increased by more than 70% (Korea Information Society Development Institute, 2012). Thus, the cyber university in Korea is able to support mobile learning services that provide ubiquitous learning environments for 16 cyber universities out of 20 universities (Ministry of Knowledge and Economy, 2012).

However, since the launch of cyber universities in 2001, while there is a continuing increase in its number, dropouts are more frequent compared with off-line universities (Lim, 2007). These problems raise doubts about the performance of cyber universities. Furthermore, some have suggested problems with the quality of education at cyber universities (Kwon, 2009; Jeon, 2010). Thus, research to improve learning outcomes, such as course satisfaction and learning persistence, in cyber learning environments may contribute to the quality of cyber universities (Maki & Maki, 2003; Martinez, 2003).

Because most cyber university administration, teaching, and learning are conducted online, learners' active participation is very important for successful learning outcomes. Therefore, self-efficacy in cyber-learning environments and the degree to which learners' use learning strategies for more effective learning

are important variables (Bandura, 1977; Park & Choi, 2008). Unlike traditional college students, cyber learners more frequently drop out due to internal as well as external stress factors (Kwon, 2009; Jeon, 2010). In particular, given that 69% of cyber university students have jobs (Ministry of Education, Science, and Technology, 2011), it is important to investigate whether academic stress and psychological variables such as mental load undermine their learning persistence (Jeon, Kim, 2012b; Joo, Jung, & Lim, 2012).

Previous research studies have reported that academic burnout reduces learning achievement and school life-satisfaction (Jeon & Kim, 2012a). Current research aims to provide basic research on the sustainability of cyber universities by additionally investigating positive and negative variables related to course satisfaction and learning persistence.

The aim of this study was to investigate whether intrinsic motivation variables such as self-efficacy, level of learning strategy use, and academic burnout predict course satisfaction and learning persistence, and school support, which has been shown to affect learning outcomes in traditional learning environments (Joo, Kim, & Kim, 2010), was added as an external environmental variable.

Specific research questions based on the hypothetical research model in Figure are as follows:

Research Question 1: Do cyber university students' self-efficacy, level of learning strategy use, academic burnout, and school support predict level of satisfaction?

Research Question 2: Do cyber university students' self-efficacy, level of learning strategy use, academic burnout, and school support predict learning persistence?

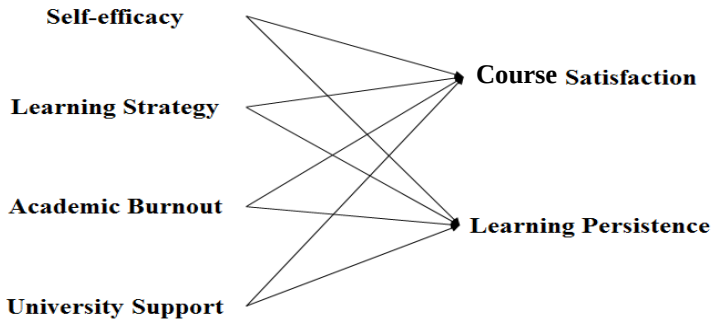

Figure 1. Hypothetical Research Model

2. RESEARCH METHOD

2.1 Subjects and Procedure

The current study targeted 228 students taking "Culture and Art History" from the department of Culture and Arts Administration at K Cyber University to investigate whether cyber university students' self-efficacy, use of learning strategies, academic burnout, and school support predict course satisfaction and learning persistence. K Cyber University students in computer-based online courses were able to attend online video lectures through a mobile application. Learners are able to attend video lectures through mobile applications that included a variety of functions such as announcement confirmation, score inquiry, and social networking services. The survey was administered two weeks prior to the end of the semester. To increase the response rate, the system encouraged students to participate in the survey through announcements and e-mails. One hundred and seventy-eight surveys were included in the final dataset, with the exception of two incomplete responses. Among the 178 subjects, 37 (20.8%) were male and 141 (79.2%) were female, and age ranged from 20–50 years. In terms of student occupation, 122 (68.5%) subjects were full-time employees, 14 (7.9%) were contractual employees, and 42 (23.6%) were unemployed. Among the 136 employed subjects, 49 (36.0%) were professional workers, 41 (30.1%) were office workers, 36 (26.5%) were service workers, and 10 (7.4%) were managerial workers.

2.2 Measurement Instrument

2.2.1 Self-efficacy

Self-efficacy was measured using nine modified items about self-efficacy from the Motivated Strategies for Learning Questionnaire (MSLQ; Pintrich and De Groot, 1990). These items were answered using a 5-point Likert scale. A sample item is "I expect that I will be able to learn very well in this course." The Cronbach's α of the original instrument was .89, and was .95 in the current study.

2.2.2 Level of Learning Strategy Use

The level of learning strategy use was measured using 14 questions about self-assessment, organization and transition, goal setting and planning, information search, record-keeping and coordination, configuration, self-reward, demonstration and remembering, asking for help (peers, teachers, and adults), and data review (paper, notes , materials) from Zimmerman and Martinez-Pons (1986). These questions were modified for cyber university learning environments.

A sample questions is "I ask for help from peer learners when I encounter a difficult study situation." To examine its validity, we conducted a factor analysis with the 14 items, and a single factor emerged.

Single factor loading values were above ± .4, which supports the validity of the extracted factors (Seong, 2007). The Cronbach's α was .87 in the original instrument by Zimmerman and Martinez-Pons (1986), and .92 in the current study.

2.2.3 Academic Burn-Out

The level of learning strategy use was measured using 14 questions about self-assessment, organization and transition, goal setting and planning, information search, record-keeping and coordination, configuration, self-reward, demonstration and remembering, asking for help (peers, teachers, and adults), and data review (paper, notes , materials) from Zimmerman and Martinez-Pons (1986). These questions were modified for cyber university learning environments.

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2.2.4 School Support

School support for cyber university students was measured as in Joo & Young-Ju (2010). There were six questions, such as "school or faculty (operator) explained that education is necessary." Cronbach's α was .89 in the study by Joo & Young-Ju (2010), and .92 in this study.

2.2.5 Course Satisfaction and Learning Persistence

We revised the instrument by Shin (2003) to measure course satisfaction and learning persistence. Course satisfaction was measured with eight items, including general satisfaction level, achievement, satisfaction with attending lecture, and intention of recommending others. A sample question is "It was a valuable experience for me to study this course." Cronbach's α was .94 in the study by Shin (2003), and .96 in the present study.

Learning persistence was measured with six items, including the importance of completing course, and willingness to overcome the impediments to learning persistence. A sample questions is "I will enroll in the next semester." Cronbach's α was .83 for the original tool, and .90 in this study.

2.3 Data Analysis

We analyzed the data obtained through online surveys to find the general nature of each variable. We calculated the mean and standard deviation for self-efficacy, level of learning strategy use, academic burnout, school support, and course satisfaction. We also calculated Pearson's correlation coefficients to analyze the relationships between variables.

To analyze the internal consistency, Cronbach's α coefficients were calculated. A violation of the multicollinearity assumption was found for self-efficacy, level of learning strategy use, academic burnout, and school support. Finally, we performed a multiple regression analysis to determine whether self-efficacy, level of learning strategy use, academic burnout, and school support predict course satisfaction and learning persistency. We considered the unique contribution of each independent variable by inserting the independent variables simultaneously (Seong, 2007).

3. RESULTS

3.1 Descriptive Analysis

We calculated the mean, standard deviation, minimum and maximum value, skewness, and kurtosis of self-efficacy, level of learning strategy use, academic burnout, school support, course satisfaction, and learning persistence. The descriptive statistics for each variable are displayed in Table 1.

Table 1. Descriptive statistics of self-efficacy, level of learning strategy use, academic burnout, school support, course satisfaction, and learning persistence ($n = 178$)

Variables	Mean	*SD*	Skewness	Kurtosis	Min.	Max.
Self-efficacy	3.46	.68	-.13	-.15	2.00	5.00
Level of learning strategy use	3.49	.69	.02	-.47	2.00	5.00
Academic burnout	2.18	.83	.73	.40	1.00	5.00
School support	3.03	.88	-.26	-.28	1.00	5.00
Course satisfaction	4.01	.79	-.53	-.46	2.00	5.00
Learning persistence	4.23	.88	-1.17	.53	1.00	5.00

As shown in Table 2, there was significant correlation among all measured variables. We verified whether there was a Variance Inflation Factor (VIF) because the correlations between variables were high. Because there was no measured variables with VIF are greater than 10, we concluded that there was no multi-collinearity

3.2 Correlation Analysis and Verification Multi-Collinearity

We conducted a multiple regression analysis to examine if cyber students' self-efficacy, level of learning strategy use, academic burnout, and school support predict course satisfaction. Self-efficacy, learning strategy use, academic burnout, and school support were predicting variables, and course satisfaction was the criterion variable (see Table 3).

Table 2. Correlations among Self-efficacy, level of learning strategy use, academic burnout, school support, course satisfaction, and learning persistence

Variables	1	2	3	4	5	6
1. Self-efficacy	-					
2. Level of learning strategy use	.770*	-				
3. Academic burnout	-.719*	-.660*	-			
4. University support	.484*	.555*	-.279*	-		
5. Course Satisfaction	.732*	.750*	-.727*	.455*	-	
6.Learning persistence	.676*	.655*	-.730*	.322*	.808*	-

*$p < .05$

As shown in Table 3, level of learning strategy use, academic burnout, and self-efficacy resulted in two statistically significant regression models. Approximately 67.7% of the variation in satisfaction was accounted for by self-efficacy, learning strategies, level of learning strategy use, academic burnout, and school support. Academic burnout (β = - .357), level of learning strategy use (β = .328), and self-efficacy (β =. 182) significantly predicted course satisfaction. School support did not predict satisfaction.

3.3 Self-Efficacy, Level of Learning Strategy Use, Academic Burnout, School Support, and Course Satisfaction

We conducted a multiple regression analysis to determine whether cyber students' self-efficacy, level of learning strategy use, academic burnout, and school support predict learning persistence. Self-efficacy, level of learning strategy use, academic burnout, school support, and commitment were predictor variables, and learning persistence was the criterion variable.

Table 3. Self-efficacy, learning strategies, utilization levels, academic burnout, school support predictions of the course satisfaction

(n = 178)

Dependent Variable	Independent variables	***B***	*SE*	*β*	t	*p*
Course Satisfaction	Constant	2.478	.386		6.415	.000
	Self-efficacy	.211	.089	.182	2.364*	.019
	Level of learning strategy use	.377	.086	.328	4.371*	.000
	Academic burnout	-.342	.063	-.357	-5.445*	.000
	University support	.077	.048	.086	1.601	.111
$R^2(adj.\ R^2)$ = .677(.669), F = 90.617, p = .000						

*p < .05 ( )Adjusted R^2

As shown in Table 3, level of learning strategy use, academic burnout, and self-efficacy resulted in two statistically significant regression models. Approximately 67.7% of the variation in satisfaction was accounted for by self-efficacy, learning strategies, level of learning strategy use, academic burnout, and school support. Academic burnout (β = - .357), level of learning strategy use (β = .328), and self-efficacy (β =. 182) significantly predicted course satisfaction. School support did not predict satisfaction.

3.4. Self-Efficacy, Level of Learning Strategy Use, Academic Burnout, School Support, and Learning Persistence

We conducted a multiple regression analysis to determine whether cyber university students' self-efficacy, level of learning strategy use, academic burnout, and school support predict learning persistence. Self-efficacy, level of learning strategy use, academic burnout, school support, and commitment were predictor variables, and learning persistence was the criterion variable.

Table 4. Self-efficacy, learning strategies, utilization levels, academic burnout, willing to continue the school's academic support predictions

Dependent Variable	Independent variables	***B***	*SE*	*β*	t	p
Learning persistence	Constant	3.513	.480		7.325	.000
	Self-efficacy	.242	.111	.188	2.191*	.030
	Learning strategy	.282	.107	.221	2.638*	.000
	Academic burnout	-.485	.078	-.455	-6.222*	.000
	University support	.018	.060	-.018	-.303	.763
$R^2(adj.\ R^2) = .598(.588)$, $F = 64.283$, $p = .000$						

*$p < .05$

As shown in Table 4, the regression model with level of learning strategy use, academic burnout, and self-efficacy as inputs was statistically significant. Self-efficacy, level of learning strategy use, academic burnout, and school support accounted for 59.8% of the variance in learning persistence. Self-efficacy (β = .188), level of learning strategy use (β = .221), and academic burnout (β = -.455) were significant predictors of learning persistence.

Meanwhile, school support did not predict learning persistence. The relationship based on the analysis of the standardized β coefficient, which expresses the standardized relationship among each variable, is illustrated in Figure 2.

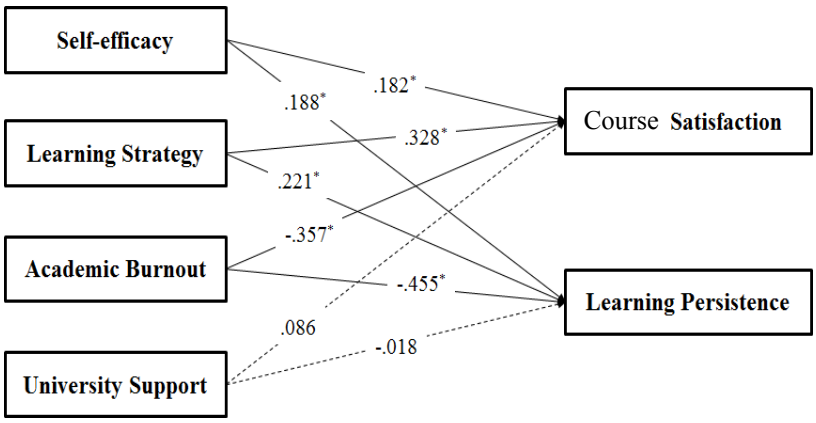

Figure 2. Self-efficacy, level of learning strategy use, academic burnout, school support, course satisfaction, and learning persistency

4. CONCLUSION

The research results are as follows: first, cyber university students' self-efficacy, level of learning strategy use affected course satisfaction in a positively significant way but the academic burn-out affected course satisfaction negatively significant, did, and school support predicted the level of course satisfaction. Second, cyber university students'self-efficacy, level of learning strategy use affected course satisfaction significantly in a positive direction but the academic burn-out affected course satisfaction in a negatively significant way. The effect of school support on learning persistence, however, was not significant.

Self-efficacy significantly predicted course satisfaction. The results are consistent with previous study results dealt with a variety settings (Park, Joo, Bong, 2007, Ryu, 2003; Joo, Kim, Kimm 2008; Artino, 2008; Liaw, 2008). However, school support did not significantly predict the course satisfaction, which was not consistent with previous studies(Paechter, Maier and Macher, 2010). The significant effects of self-efficacy, level of learning strategy use, academic burn-out on learning persistence were consistent with previous study results(Jeon, Kim, 2012; Joo, Hong, & Lee, 2011). In particular, the current research results that academic burn-out is negatively effective on course satisfaction and learning persistence is very meaningful since it investigated the negative factor, which negatively affect learning outcomes in cyber and m-learning.

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