

Motivation and Retention: A Comparison between Fully Online Students and On-Campus Students Taking Online Courses

Ernesto Gonzalez, Ph.D.

4425 W Jose Regueiro (20th) AVE, Hialeah, FL 33012.

egonzalez@fnu.edu

Abstract: The objective of this study is to assess the impact of intrinsic motivation, extrinsic motivation, and amotivation on retention for online students and on-campus students taking online courses at Florida National University. The descriptive analysis, which was based on the self-determination theory, used the Academic Motivation Scale adapted to online setting. The results show high values of intrinsic and extrinsic motivation for the two groups of students, but no statistical significant differences. However, the values of amotivation and the intention to continue taking online courses (retention) were statistically different. Structural equation modeling revealed that intrinsic and extrinsic motivation had a positive impact on retention for both groups. On the other hand, amotivation had a significant negative influence.

Keywords: Online learning, online education, intrinsic motivation, extrinsic motivation, amotivation; retention

INTRODUCTION

The growth of online learning has been practically unstoppable due to the advantages it offers for those who cannot attend classes physically. Current trends reveal that many educational institutions now consider online education critical to their long-term strategy. The number of students taking at least one online course expanded for the past seven years, surpassing the growth of overall higher-education enrollment. For example, in 2010, the number of online students was 6.1 million, a 10% increase from the total in fall 2009. The average yearly growth from fall 2002 to fall 2010 was even higher at 18.3%, as enrollees in 2002 were only 1.6 million. In comparison, the overall higher-education student body has expanded only 3% on the average for the same period — from 16.6 million to 19.6 million. Therefore, the proportion of students taking at least one online course has been increasing as well: from less than 10% of all higher-education students in fall 2002 to 31% by the end of 2010. Private for-profit institutions appear to be leading the online learning phenomenon: from 2009 to 2011, they reported that online learning is critical for their long-term strategy 50.7%, 60.5%, and 69.1%, respectively (Allen & Seaman, 2011).

Students who participate in online education perform as well as (or even slightly better than) those in purely classroom settings. This suggests that online delivery can be an effective teaching option (Cater III, Michel, & Varela, 2012); therefore, motivating online learners must be a nonstop process of providing learning solutions associated with the use of technology. For instance, a person who chooses the online modality ought to be willing to do what his/her peers are doing and approach tasks with interest and commitment (Deci & Flaste, 1996). Thus, his/her motivation to learn derives from, among other things, the meaningful nature of these learning environments and activities (Shroff, Vogel, & Coombes, 2008).

According to Omar, Kalulu, and Alijani (2011), the need for motivation is based on the fact that institutions usually treat all students alike, and the “no significant difference” phenomenon between traditional and online students will continue. This study aims to describe how intrinsic motivation, extrinsic motivation, and amotivation influence the students’ intention to continue taking online courses as a measure of retention in two samples: fully online (OL) students and on-campus students taking one or more online courses (OCOL). This work has three sections: (1) a literature review describing the components of intrinsic motivation, extrinsic motivation, and amotivation, and how the components affect retention in online courses; (2) an explanation of the methodology used in the study; and (3) a discussion based on the findings and the conclusion.

THE STUDY

The concept of motivation refers to the desire to pursue a learning goal or carry out specific learning tasks (Deci, 1996); it plays an important role in the learning context in that it shows how students in both traditional and online learning environments are successful. In other words, motivation is an internal force that guides behaviors toward learning and/or achievement and must thus be seen as a priority in both online learning and personal environments. People are motivated by their interest in an activity, the value placed on that activity, or an external coercion (Ryan & Deci, 2000). Motivation is maximized when they expect valuable and achievable outcomes from the activity (Bandura, 1997).

Although some argue that the number comparative studies between the online and classroom delivery of instruction methods have reached saturation level (Abrami, Bernard, Bures, Borokhovski, & Tamin, 2011), there is neither an exclusive list of influential factors nor a universal model for all situations supporting individual student motivation in technology-supported environments (Saade, Tan, & Nebebe, 2008). Therefore, there is an opportunity for finding valuable information on how to improve teaching quality to satisfy a student's progress in online learning. For example, Wighting, Liu, and Rovai (2008) found that the stronger motivation of the online group represents the most important predictor in discriminating between online and traditional students. Students who elect to enroll in online courses may have already possessed a strong intrinsic motivation to learn in general, higher self-regulatory competence to accomplish their learning goals (Dabbagh & Kitsantas, 2004), a more autonomous online learning environment, and higher proficiency in technology (Qureshi, Morton, & Antonsz, 2002).

The Self-Determination Theory (SDT) is an approach used to explain students' behavior in the learning processes; it states that behaviors can be intrinsically and extrinsically motivated or amotivated (Deci & Ryan, 1985). Nevertheless, SDT has been applied to the educational context (Standage, Duda, & Ntoumanis, 2005; Niemiec et al., 2006; Cheng & Jang, 2010; Guiffrida, Lynch, Wall, & Abel, 2013), and this theory has been found to be a predictor of learning outcomes such as performance, persistence, engagement, achievement, and learning satisfaction (Deci & Ryan, 1985; Chen & Jang, 2010; Areepattamannil, Freeman, & Klinger, 2011; Guiffrida et al., 2013). The present research has selected SDT (Deci & Ryan, 1985) to support the study of motivation and its impact on retention for fully online students and on-campus students taking online courses.

Intrinsic motivation, one of the components of self-determinate behaviors, is an inclination to find satisfaction in an activity by itself, which drives individuals to explore more about the activity and learn from participating in that activity (Deci & Ryan, 2000). An individual who is intrinsically motivated participates in an activity with vigor (Saade, Tan, & Nebebe, 2008), tries to know more about it, strives to accomplish the goals, and experiences stimulation when doing the activity. Moreover, intrinsic motivation has been found to be a stronger factor than extrinsic motivation for enrolling in an online course because the students find the online environment less controlling (Rovai, Ponton, Wighting, & Baker, 2006); exhibit higher levels of interest (Stevens & Switzer, 2006), an independent learning style, and self-directed behavior; and possess an internal locus of control (Terrell & Dringus, 1999). Specifically, Guiffrida et al. (2013) found that students whose intrinsic need for autonomy and competence motivated them to attend college showed a higher grade point average (GPA) and intention to persist than other students. In addition, intrinsically motivated students develop (1) emotional strength, knowing they are not alone in the learning process, and (2) self-efficacy born of higher expectations and a heightened sense of their ability to succeed in their new learning environment (Holder, 2007).

Another kind of motivation is extrinsic motivation. According to the SDT (Deci & Ryan, 1985), some behaviors or actions are triggered by external stimuli, not by the activities themselves; they work as a means to an end and are not done for their own sake (Deci, 1975). Students can be spurred to learn by inherent and extrinsic motivation at the same time. For instance, Ballmann and Mueller (2008) found that the students' decision to attend an educational institution was influenced by both extrinsic and intrinsic motivation (to know).

Extrinsic motivation occurs when individual behavior is externally controlled by rewards and constraints. Individuals engage in an activity when (1) they feel pressured to do so by peers, the instructor, or social influencers avoiding painful consequences; (2) their behavior is triggered and controlled by external rewards, such as prizes promised by instructors or parents (Deci & Ryan, 1985a); (3) they value a behavior and perceive it as having been chosen by themselves (Vallerand et al., 1992); and (4) they do it willingly and the self-regulation is consistent with their self-concept (Deci & Ryan, 1985).

Amotivation, another component of the self-determination theory, is the absence of motivation. Individuals are amotivated when (1) they perceive a lack of contingency between their behavior and outcomes, (2) they feel incompetence and a lack of control (Deci & Ryan, 1985); and (3) they do not perceive as valuable the use of intrinsic or extrinsic rewards for participating or being engaged in an activity. Basically, individuals feel that their behaviors are caused by forces beyond their control and, undecieved (Vallerand et al., 1992), they are neither intrinsically nor extrinsically motivated. Amotivation has been found to be a relevant negative predictor of persistence in education (Deci & Ryan, 1975; Vallerand & Bissonnette, 1992).

On the other side, retention rates have been shown as a timeless concern of educational institutions since many years ago. The lack of retention and persistence, dropping out, and attrition have historically challenged

academic systems (Berge & Huang, 2004) — in both traditional and distance learning. Retention or persistence in an e-learning setting is shown by a series of student behaviors, skills, and attitudes toward continuing involvement in that learning environment in spite of obstacles (Rovai, 2002; Hart, 2012) to their goals. It is one of the most important indicators of the effectiveness (Rovai, 2002) of institutions at all educational levels. Boston, Ice, and Gibson (2001) stated that formal research concerning retention began as early as 1926 (Braxton, 2000), and academics such as Spady (1970), Astin (1993), Tinto (1975, 1993), and Braxton, Hirschy, and McClendon (2004) published influential research on student retention. There are now more studies on retention, including retention in the e-learning context.

With regard to online learning, we can add that when students have the ability to work independently, they maintain their motivation despite conflicting commitments and demonstrate computer proficiency (Holder, 2007). Furthermore, if the online structure allows students to satisfy their goals, they will have more favorable perceptions of the quality of online courses (Rodriguez, Ooms, & Montañez, 2008), which will have a positive impact on their retention. In contrast, when e-learning students are incapable of managing their time properly, prioritizing, motivating themselves to meet university academic standards, or adapting to their new communal educational environment; have financial difficulties (Omar, Kalulu, & Alijani, 2011); or perceive that online interaction with the instructor is weaker than in person, their motivation decreases (Wolcott & Burnham, 1991; Zvacek, 1991). Consequently, they fail or drop out more frequently than other students (Omar et al., 2011). In this respect, Muilenburg and Berge (2005) found that the lack of social interaction was the biggest barrier to taking another online class. This result reinforces the idea that student motivation in online courses is driven by the need to achieve personal goals and meet the expectations of their peers (Scardamalia & Bereiter, 1994).

There are different strategies to support the completion of an online course. For example, elements such as weekly e-mails, a clear schedule, flexible testing times and dates, and frequent interaction between participants and instructors decrease the sense of physical distance; these have been important factors in the high completion rates of online courses (Pittenger & Doering, 2010). Instructional design fosters a sense of confidence and satisfaction in students (Keller, 1987, 1999), and keeps them engaged by providing reliable resources that promote self-directed learning (Keller, 2006). When complemented by auxiliary instruction, instructional design mitigates the lack of confidence (Benson, 1989) by offering accessible supplemental activities that give quick learning results for minimal effort, thereby avoiding low motivation to learn and achieve.

The lack of instructor participation and clear guidelines in the online instructional design has a negative effect on motivational learning. Instructors must pay attention to the learning content itself, teaching methods/styles, their expertise in the subject matter, and types of learning activities, for instance, giving students practical work experiences to apply their learning (Noel-Levitz, 2013) — satisfying the factors that influence student motivation, as a student's perception of instructional quality is related to favorable academic outcomes (Artino, 2007). On the opposite end, the absence of the aforementioned elements cancels their positive effects on e-learners, thereby increasing the likelihood that e-learners will withdraw from the course or program, or discontinue their involvement in the learning environment (Young & Vachon, 2005).

High learning quality with an acceptable instructional design will keep students highly engaged and thus encourage them to remain in the environment. Student engagement is often a product of instructional content and quality across social interaction, which occurs, for instance, on discussion boards in online courses (DeLotell, Milliam, & Reinhardt, 2010).

The study was conducted to answer this research question: How do intrinsic motivation, extrinsic motivation, and amotivation affect the retention of students who are taking fully online and on-campus online courses? An electronic survey was designed to validate the construct motivation and retention in an online learning context, and the theory found within the research framework. The instrument was divided into three parts to provide psychological differentiation, with an introduction saying that we are examining motivational issues, without implying any link with the dependent variable, retention. The first part obtained information on the level of motivation among students taking online courses at Florida National University (FNU) during the summer semester of 2013. The motivation component was measured with the Academic Motivation Scale (AMS) developed by Vallerand et al. (1992), adapted to fit the online learning motivation from the Sport Motivation Scale version created by Pelletier, Fortier, Vallerand, Tuson, and Brière (1995), and the one adapted by Stover, De la Iglesia, Rial Boubeta, and Fernández (2012). This instrument contains one subscale each for intrinsic motivation, extrinsic motivation, and amotivation. All 28 items of the scale were grouped according to the different components of motivation as explained by Pelletier et al. (1995), and rated using a seven-point scale. The answers to the question "Why do you take online courses?" ranged from "1 - Does not correspond at all" to

“7 - Corresponds exactly.” The items offer possible answers that reflect the different types of motivation.

The second part of the questionnaire examined student retention in an online setting. After analyzing the literature, it was found that retention is measured from different perspectives: (1) attitudinal (Hallowell, 1996; Bowen & Chen, 2001), (2) behavioral (Hardre & Reeve, 2003; Liljander & Strandvik, 1994; Day, 1969), and (3) combined, which involves a psychological/attitudinal component with repeated behaviors (Oliver, 1999; Bloemer, de Ruyter & Peetersl, 1998; Al-hawari & Mouakket, 2010). In this study, retention is measured through intention, since it is appropriate for testing an individual's behavior (Ajzen & Fishbein, 1980), and this is considered the best immediate factor of the relationship between attitude and behavior (combined perspective).

Finally, five items were found to be appropriate in defining the intention to continue taking online courses from the combined perspective of retention: (1) “I intend to continue taking online courses” (behavioral component, modified for online retention from Zeithaml, Berry, and Parasuraman, 1996; Bhattacharjee, 2001; Ribbink, Van Riel, Liljander, and Streukens, 2002; Devaraj, Fan, and Kolhi, 2002; and Cyr, Head, and Ivanov, 2006); (2) “My intention is to continue taking online courses rather than using traditional courses” (behavioral component, modified for online retention from Bhattacharjee, 2001 and Devaraj et al., 2002); (3) “I will continue taking online courses even if I face problems” (behavioral component, modified for online learning from Zeithaml et al., 1996; Ribbink et al., 2002; and Cyr et al., 2006); and (4) “I recommend taking online courses” and (5) “I say positive things about online learning” (attitudinal components, modified for online retention from Zeithaml et al., 1996; Ribbink et al., 2002; and Cyr et al., 2006). The items were rated with exactly the same scale used in the 28-item AMS. The third part of the questionnaire included questions concerning demographics. (See Appendix 1)

The questionnaire was reviewed by (1) some scholars with traditional and online teaching experience to verify whether the content of the items worked appropriately within the online learning context and (2) piloted through 22 students taking a business online course at FNU that was taught by the author from the beginning of the summer semester in May 2013. Only one item — related to one of the reasons students have to take online courses (motivation) — was confusing to them. The item was reworded as “Because it is absolutely necessary to take online courses if one wants to be on top of knowledge.” (See Appendix 2).

A convenience sampling technique was used to collect data between May 2013 and August 2013 from 788 undergraduate students taking online courses (210 fully online and 577 on-campus taking online courses in the summer semester). The questionnaire was released through Google's Drive, and was sent to all students by e-mail. Of the total recipients, 198 returned the questionnaire (24.8%), all of which were encoded into an excel file and imported into SPSS v.22 and AMOS v.22. The OL and OCOL students were classified using three of the most common demographic variables, and students from both samples were primarily female, between 18 and 35 years old; the majority consisted of single students and couples with children (see Appendix 1).

After observing undesirable values of skewness and kurtosis (data compression) for each quantitative variable, the Kolmogorov-Smirnov and Shapiro-Wilk tests were performed to assess univariate normality. Both tests returned a statistically significant difference from a normal distribution. All the quantitative variables were transformed to achieve normality by using the arithmetical function of log base-10 (Log10). As a result, all variables considerably improved their normality (skewness, kurtosis values, histogram, and Q-Q plot). Two cases were eliminated due to incomplete responses, and five cases with missing values (2.56%, 5/196 cases) across all 33 continuous variables were found and assessed for possible missing data intervention. Little's MCAR test (chi-square = 203.852, df = 154, Sig = .004) showed that the data might be missing at random. Additionally, five cases (32, 55, 83, 147, and 191) were identified as potential outliers and eliminated from the analysis (with 33 degrees of freedom and Mahalanobis distance values equal to or greater than 63.87). Moreover, the homogeneity of the variance-covariance matrices was measured with Box's test and was statistically significant ($F = 1.565$, $p < .001$), suggesting that there was no equality of variance-covariance matrices. In the end, the sample was down to 191 students (95 OL and 96 OCOL) out of 788, representing 24, 2%.

An exploratory factor analysis of the 33 variables (28 variables for intrinsic motivation, extrinsic motivation, and amotivation; and five variables for retention) was conducted on the data of the 191 students. The varimax extract rotation method yielded a Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy of 0.954; Bartlett's test of sphericity indicated significance ($p < 0.001$, with chi-square = 5301.997, df = 378). Three factors showed eigenvalues greater than 1.00 (71.133% of the total variance). By analyzing the content of each factor, the 28 items were grouped under intrinsic motivation (18), extrinsic motivation (6), and amotivation (4). Each subscale of motivation was assessed for consistency by Cronbach's alpha coefficients, resulting in adequate alpha ratios

(intrinsic motivation $\alpha = 0.97, p < 0.001$; extrinsic motivation $\alpha = 0.89, p < 0.001$; and amotivation $\alpha = 0.85, p < 0.001$). The same analysis was performed on the five-item retention scale, which yielded a KMO measure of 0.856; a significant Bartlett's test of $p < 0.001$ (chi-square = 773.023, $df = 10$); an *one* factor greater than 1.00 (3.851; 77.026% of explained variance) and alpha coefficient $\alpha = 0.92, p < 0.01$. The KMO measure and Bartlett's test for both motivation and retention scales produced reliable results, indicating that the data had sufficient correlation between variables and was, therefore, suitable for principal components analysis. The alpha coefficients for each subscale of the motivation and retention scale were above 0.70, indicating high reliability (Nunnally, 1978).

After applying an exploratory factor analysis and obtaining three factors for motivation and one for retention, a confirmatory factor analysis was conducted to determine whether the hypothesized factors with their associated indicator variables fit the data (evidence of validity). The original model offered the following indexes: chi-square = 217.658, $df = 165, p < .001$ GFI = .72, NFI = .82, CFI = .88, and RMSEA = .097. The model did not fit the indexes for GFI, NFI, and CFI; but, the RMSEA was acceptable. A review of the modification indexes led to respecifying the model by the variables of the latent factors. The process of respecifying the model suggested the elimination of some variables of the latent factors intrinsic motivation, extrinsic motivation, and amotivation to have a better model fit. The results of the respecified model achieved a significant chi-square of 276.296, $df = 167, p < .001$ and higher values for the indexes: GFI = .90, NFI = .937, RFI = .921, CFI = .974, RMSEA = .050, PCLOSE = .122 (see Table 1).

Table 1: Indexes obtained after respecifying the model

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	64	276.296	167	.000	1.654
Saturated model	231	.000	0		
Independence model	21	4417.806	210	.000	21.037
Model	RMR	GFI	AGFI	PGFI	
Default model	.005	.90	.836	.637	
Saturated model	.000	1.000			
Independence model	.054	.135	.048	.122	
Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.937	.921	.974	.967	.974
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000
Model	RMSEA	LO 90	HI 90	PCLOSE	
Default model	.050	.046	.071	.122	
Independence model	.325	.316	.333	.000	

Since the main purpose of this research is to determine the impact of motivation on retention for both OL and OCOL students, it was important to know whether the model can be applied equally well to data obtained from two or more different groups. The Model Invariance Assessment evaluated the difference between unconstrained and constrained models (model comparisons), which assumes that the groups are not yielding different values of the parameters when the model is applied to the data (Meyers et al., 2013). The key results of the nested model comparisons were evaluated by a chi-square test (CMIN) (see Table 2). All the comparisons yielded statistically significant results; therefore, the correlation or variances of the variables differ between the groups, and the research question will be explained for each group separately. The comparisons between online and on-campus students' motivation-retention relationships on path coefficients and correlations are shown in Appendix 3 and the path variance models in Figures 1 and 2.

Table 2: Nested Model Comparisons (Assuming model Unconstrained to be correct)

Model	DF	CMIN	P	NFI Delta-1	IFI Delta-2	RFI rho-1	TLI rho2
Measurement weights	17	28.816	.036	.006	.007	.000	.000
Measurement intercepts	38	84.327	.000	.018	.019	.005	.006
Structural weights	41	94.334	.000	.020	.021	.006	.007
Structural covariances	47	101.741	.000	.021	.023	.006	.006
Structural residuals	48	102.012	.000	.021	.023	.005	.006
Measurement residuals	85	227.607	.000	.048	.051	.018	.020

FINDINGS

Intrinsic Motivation, Extrinsic Motivation, Amotivation, and Retention for OL and OCOL Students

The results of the study indicated different mean values of intrinsic and extrinsic motivation, amotivation, and retention for OL and OCOL students (see Table 3). The mean of each latent variable showed that intrinsic motivation (OL: 4.42 and OCOL: 4.23) had the highest score, followed by extrinsic motivation (OL: 3.1 and OCOL: 2.99) and amotivation (OL: 2.02 and OCOL: 3.00). All results from the mean of each variable offered low/intermediate values from a seven-point scale. The intention to continue online courses (retention) of OL students was 6.06 and for OCOL, 4.00.

An analysis of mean comparison — by applying *Levene's test* to all latent variables — showed nonsignificant differences between OL and OCOL students in the intrinsic motivation variables. For extrinsic motivation, two out of three internal variables yielded nonsignificant differences, although the variable “To show others how good I am at my online learning” did show an important difference between OL and OCOL students. For the latent variable retention, the analysis offered significant differences between the two samples for each retention internal variable (see Table 3); therefore, the intrinsic motivation variable (var22) and retention can be treated as perceived differently by OL and OCOL students, which supports the idea of analyzing both samples separately, as indicated by the invariant assessment previously performed.

Table 3: Mean comparison for motivation and retention variables.

Variables	Online (n=95)		On-campus (n=96)		Levene's test for equality of variances	
	Mean	Std. Deviation	Mean	Std. Deviation	F value	Sig.
V4	4.67	2.25	4.66	2.24	0	0.97
V13	4.49	2.22	4.27	2.25	0.9	0.34
V27	4.47	2.34	4.47	2.14	1.07	0.3
V17	4.62	2.37	4.71	2.21	1.71	0.19
V8	4.48	2.31	4.39	2.15	0.29	0.59
V15	4.47	2.3	4.28	2.31	1.37	0.24
V20	4.37	2.32	4.11	2.19	0.01	0.93
V12	4.54	2.14	4.13	2.2	2.15	0.14
V23	4.16	2.4	4.04	2.25	0.56	0.45
V11	4.75	2.2	4.22	2.18	1.2	0.28
V18	3.97	2.48	3.78	2.16	2.09	0.15
V25	4.11	2.41	3.73	2.17	0.15	0.7
Intrinsic Motivation	4.43		4.23			
V24	2.66	2.18	2.66	1.91	0.17	0.68
V22	3.36	2.49	3.26	2.13	5.26	0.02
V14	3.28	2.4	3.07	2.17	0.61	0.44
Extrinsic Motivation	3.1		3			
V19	2.06	1.88	3.27	2.28	11.91	0.00
V5	1.99	1.91	2.73	2.19	7.82	0.01
Amotivation	2.03		3			
V29	6.23	1.61	4.84	2.14	18.01	0.00
V30	5.84	1.87	3.92	2.13	17.18	0.00
V32	6.05	1.65	5.04	2.1	12.33	0.00
V33	6.14	1.5	5.4	1.86	7.16	0.01
Retention	6.07		4.8			

As mentioned above, internal variables/items of intrinsic motivation for both the fully online and on-campus students displayed high correlation coefficients with their latent variable, intrinsic motivation, but their means did not show statistically significant differences between the two kinds of students. The arguments that tend to be intrinsically motivated (see Figures 1 and 2) are the excitement the students feel when they are involved in the learning activity (var13, var25); the pleasure of discovering new learning strategies and study techniques (var27, var4); and the pleasure in performing certain difficult assignments that help improve some weak points and develop other aspects of themselves by using online techniques they never tried before (var11, var12, var20,

var23). The students feel intense emotions while taking the online course they like (var18), recognizing that online learning is a good way to learn several useful things in other areas of their life (var17). Therefore, they feel personal satisfaction while mastering certain difficult online learning challenges and perfecting their abilities (var8, var15).

Table 3 shows the arguments on being extrinsically motivated to take online courses. Two items were similar for OL and OCOL students and one, different. In this respect, the students recognize that online learning is an effective way of maintaining sound relationships with friends (var24) and making them feel good about themselves (var14). However, OL students have a stronger perception that the online environment is a venue where they can show off how good they are at online learning (var22).

Amotivation, the third motivational component, appears in the absence of motivation. Despite being intrinsically or extrinsically motivated, both OCOL and OL students recognize some amotivation factors resulting from negative or frustrating thoughts — when their outcomes do not match expectations or when they have personal/professional issues. Concretely, their amotivation is manifested by the uncertainty that their place is really in online learning (var19) and sometimes, the impression that they are incapable of succeeding in their online course (var5). These two factors are stronger in OCOL students.

The following results describe how each component of motivation impacted the dependent variable, retention, for both OL and OCOL students.

Predicting Retention from Motivation of OL and OCOL Students

In order to address the research question, the prediction validity of intrinsic motivation, extrinsic motivation, and amotivation on retention was developed through structural equation modeling (AMOS v.22). As mentioned in the data analysis section, it was necessary to know whether the model could be applied equally well (invariant across the groups) to data obtained from two different groups (online students and on-campus students taking online courses). The correlation or variances of the variables between the groups were found to differ, and we concluded that the research question will be explained separately for each group. Path analyses were performed on the OL and OCOL groups. In both samples, overall retention (measured by the intention to continue taking online courses) was the dependent variable and the three components of motivation — intrinsic, extrinsic, and amotivation — the independent variables.

For the OL students (see Figure 1), all the intrinsic motivation variables show a high correlation with the latent variable, retention. There is a positive correlation between intrinsic and extrinsic motivation and retention ($r = .43$ and $r = .33$, respectively). A negative correlation exists between amotivation and retention ($r = -.58$). In this case, we found that an increment in either intrinsic or extrinsic motivation led to higher retention in the online setting. The negative impact of amotivation on retention is the highest correlation found, so that the higher the amotivation in students to take online courses, the lower their intention to take them in the future.

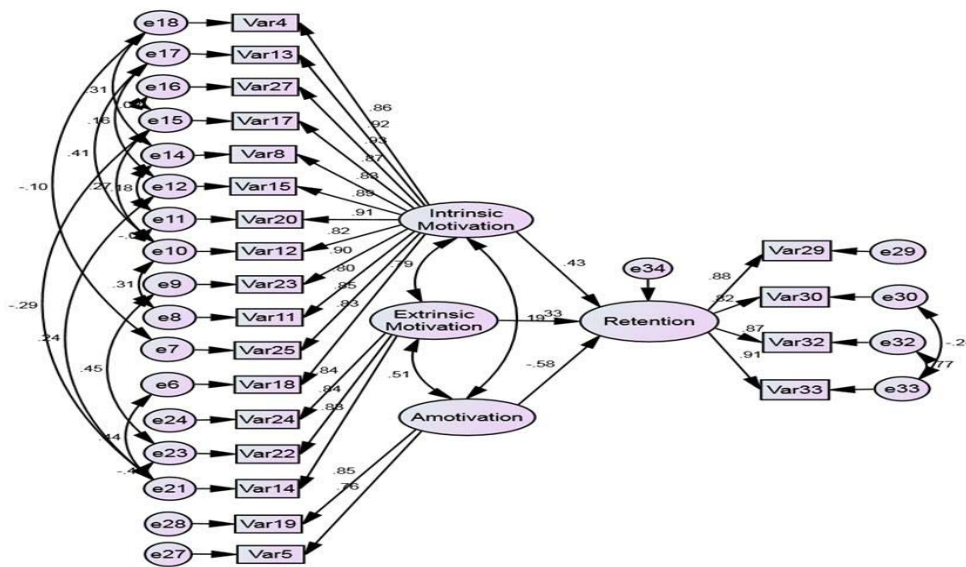


Figure 1: The Path variance Model for retention in online courses for *online students (OL)*.

The correlations between the components of motivation and retention of the OCOL students (Figure 2) behaved similarly to those of the OL students. Intrinsic and extrinsic motivation impacted positively on retention ($r = .35$ and $r = .27$, respectively) and amotivation, negatively ($r = -.59$). Intrinsic and extrinsic motivation trigger higher retention among OCOL students, and the higher the amotivation, the lower their intention to continue taking online courses. Note that there is a statistically significant difference between OL and OCOL students with regard to amotivation and retention; the negative impact of amotivation on retention is stronger among the on-campus students.

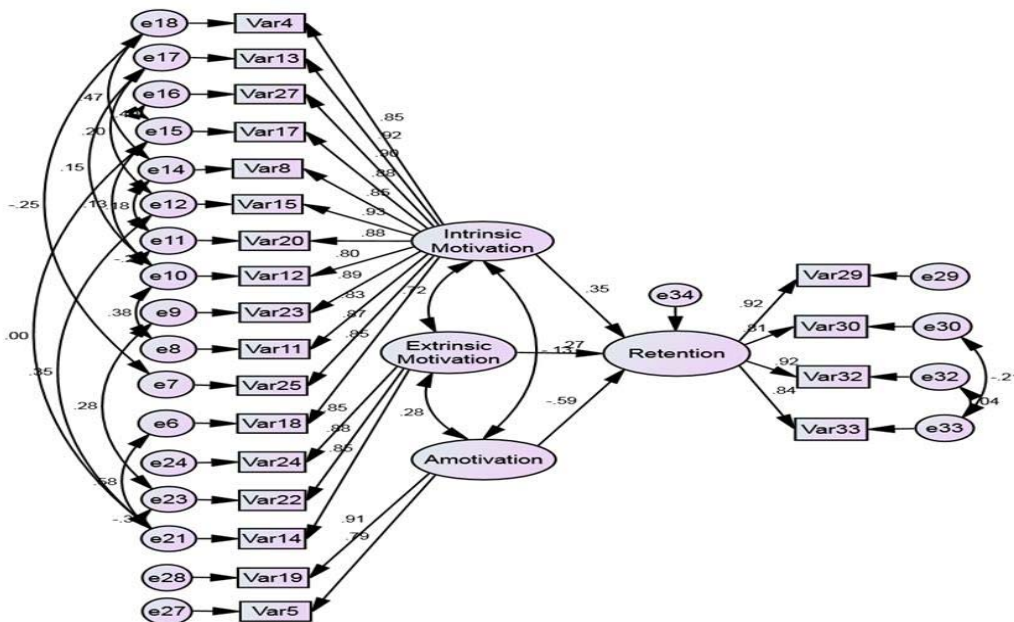


Figure 2: The Path variance Model for retention in online courses for *on-campus students taking online courses (OCOL)*

DISCUSSION

The path coefficients from the intrinsic motivation, extrinsic motivation, and amotivation components that were tested proved to be important predictors of retention in online courses; this result was also obtained in prior studies (Saade, Tan, & Nebebe, 2008; Areepattamannil & Freeman, 2011; Guiffrida et al., 2013). The use of structural equation modeling tools identified differences in amotivation and retention between fully OL and OCOL students; however, no differences in intrinsic and extrinsic motivation occurred between the groups.

The study found that fully OL students had high intrinsic motivation for taking online courses. OCOL students, despite being reluctant by nature to take online courses, showed similar levels of intrinsic motivation. Thus far, the students' intrinsic motivation had been based mainly upon the pleasure of discovering and using new study techniques, learning strategies that they had never tried before, and the pleasure felt while performing difficult assignments. Moreover, Deci and Ryan (2000) found that students were intrinsically motivated by the excitement and intense emotions they experienced while being involved in the course they liked and the satisfaction of perfecting their abilities through the online environment. This study reveals that intrinsic motivation is a stronger factor than extrinsic motivation for enrolling in an online course; as similarly observed by Rovai et al. (2006).

With regard to extrinsic motivation, the students said that online learning is another platform on which to reinforce peer relationships and avoid losing them (Deci & Ryan, 2000; Vansteenkiste & Lens, 2006). It was also found that when students showed how good they were at online learning (one of the components of extrinsic motivation, the results of which produced differences in both samples), they positively affected the others' intention to continue taking online courses. Since online learning is more challenging than traditional learning because individuals must have a higher self-deterministic attitude, online students, in this study, perceive that they will receive recognition from peers or relatives when they make a great effort, which reinforces their resolve to pursue their academic goals.

Regardless of whether they are intrinsically or extrinsically motivated, OL and OCOL students reveal some amotivation for online learning. Evidence of amotivation is their (1) being unconvinced that their place is in online learning and (2) permanent impression that they are incapable of succeeding in online learning. In this respect, individuals could not sustain their levels of intrinsic and/or extrinsic motivation, and they sometimes experienced a lack of interest or frustrating thoughts about online learning. This could affect their performance and outcomes in the course; therefore, they are more often susceptible to amotivation. This study reveals that these beliefs can have a high and relevant negative impact on the intention to continue taking online courses, and they are stronger among OCOL students. This prediction corroborates what Deci and Ryan (1975), and afterward, Vallerand and Bissonnette (1992), found pertaining to amotivation and persistence in online learning.

Retention, measured by the intention to continue taking online courses, was finally defined by four items. As said above, the results showed differences between the two groups of students regarding their intention to continue taking online courses. OL students clearly have the persistence to continue taking online courses. As expected, OCOL students also showed a positive predisposition to take online courses in the future, but at a lower level than their fully OL counterparts. The lower intention demonstrated by OCOL students could be attributed to external factors that lead them to opt for online alternatives instead of going fully online. Fully OL students are more eager to recommend online classes to friends and peers, and say positive things about online learning. It seems that the disposition of OCOL students to encourage others to use the online platform for learning is influenced more by the experiences and outcomes they obtain at finishing their courses than the fact of being an online learner. The results are in synchrony with the conclusions obtained by Guiffrida et al. (2013), who found that students who were motivated to attend college to fulfill intrinsic needs for autonomy and competence showed a higher GPA and intention to persist than students who were less motivated to attend for these reasons.

After making efforts for keeping severity from the beginning in the study some limitations were inevitable. First, the results lack generalizability across the United States since this study was conducted only on a sample of students at FNU. Second, the exploratory factor analysis yielded general components of motivation and did not allow the identification of subcomponents for intrinsic and extrinsic motivation, which was offered by the original AMS scale used in previous studies. Third, although some demographic variables were used to describe the samples, they were not used to produce deeper conclusions.

This study recommends the continuing analysis of traditional students who combine on-campus and online courses, as they seem to have the potential to improve learning outcomes once their intrinsic and extrinsic

motivation for online learning is boosted by good instructional design. Future studies can focus on exploring the impact of motivation on retention, moderated by demographic variables, mainly for on-campus students taking online courses. Finally, as stated by Thorndike (2005), the survey used in this study has a social desirability bias and the response sets are considered significant threats to the construct validity. Therefore, the direct behavioral measures to be used in future studies will help explain how motivation influences retention (Artino, 2007).

CONCLUSION

Despite the resistance of some students to take fully online courses, economics and social factors nowadays force some of them to find alternative ways of learning to achieve their personal and professional goals. Many would rather take online classes, even when this option does not favor them totally. Conversely, other students combine traditional and online learning to pursue their academic degrees.

The main objective of this research was to study the impact of motivation on retention of the students. The lack of motivation (amotivation) has been found to be an important reason for dropping out from online courses over the past years (Ryan & Deci, 2000; Saade et al., 2008; Wighting et al., 2008; Cheng & Jang, 2010; Guiffreda et al., 2013). Moreover, motivation has a significant impact on academic achievement (Areepattamannil et al., 2011).

This particular research concentrated on two groups: fully online students and on-campus students taking online courses. The second group, being a combination of traditional and online students, had not yet been targeted by researchers. This study provides empirical evidence of the positive impact of intrinsic and extrinsic motivation, and the negative influence of amotivation on the retention in online learning of both fully OL students and OCOL students. The negative impact of amotivation is stronger on OCOL students. This research reinforced the findings of Wighting, Liu, & Rovai (2008) that intrinsic motivation is difficult to separate from extrinsic motivation. Despite the fact that most of the extrinsic reasons to take online courses had a similar influence on both kinds of students, there was a difference as regards one element of extrinsic motivation (“to show others how good I am at my online learning”).

The above conclusion suggested that the key variables used to investigate motivation and retention in this study may be similarly or differently relevant across students' enrollment status in online courses; they may open new avenues for improving the teaching-learning quality in the online setting. In this respect, online instructors should profile the basis of enrollment. The classification of students in an online course as either fully OL or OCOL will allow instructors to take into account in their lessons, exercises, extra work, and feedback the OCOL students who have a lower academic performance. Holder (2007) stated that online students show a strong sense of their own personal ability to succeed in their new learning environment. However, in this study, this was an amotivational ingredient for both OL and OCOL students. Mainly, OCOL students displayed sensitivity to the impression they were incapable of succeeding in online learning, which impacted negatively on retention. Therefore, instructors should put special emphasis on converting such pessimism into a willingness to continue, using the online platform to learn through more interaction.

REFERENCES

- Abrami, P. C., Bernard, R. M., Bures, E. M., Borokhovski, E., & Tamin, R. M. (2011). Interaction in distance education and online learning: Using evidence and theory to improve practice. *Journal of Computing and Higher Education*, 23, 82-103.
- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. NJ: Prentice-Hall, Englewood Cliffs.
- Al-hawari, M., and Mouakket, S. (2010). The influence of technology factors on students' e-satisfaction and e-retention within the context of UAE e-learning, *Education Business and Society: Contemporary Middle Eastern Issues*, 3(4), 299-314.
- Allen, I. E., & Seaman, J. (2011). Retrieved July 20, 2013, from http://www.sloanconsortium.org/publications/survey/going_distance_2011.
- Areepattamannil, S., Freeman, J.G., and Klinger, D. A. (2011). Intrinsic motivation, extrinsic motivation, and academic achievement among Indian adolescents in Canada and India. *Soc Psycho Educ*, 14, 427-439.
- Artino, A. R. (2007). Motivational beliefs and perceptions of instructional quality: predicting satisfaction with online training. *Journal of Computer Assisted Learning*, 24, 260-270.
- Astin, A. W. (1993). *What matters in college: Four critical years revisited*. San Francisco, CA: Jossey-Bass.
- Ballmann, J. M., & Mueller, J. J. (2008). Using self-determination theory to describe the academic motivation of allied health professional-level college students. *Journal of Allied Health*, 37(2), Summer, 90-96.

- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84, 191-215.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
- Bhattacharjee, A. (2001). Understanding information systems continuance: An exploration-confirmation model. *MIS Quarterly*, 25(3), 351-370.
- Beaudin, B. P. (1999). Keeping online asynchronous discussions on topic. *Journal of Asynchronous Learning Networks*, 3(2), 41-53.
- Benson, J. (1989). Structural components of statistical test anxiety in adults: An exploratory model. *Journal of Experimental Education*, 57(3), 247-261.
- Berge, Z. L., & Huang, Y. P. (2004). A model for sustainable student retention: A holistic perspective on the student dropout problem with special attention to E-learning. *DEOSNEWS*, 13(5), (Retrieved February 8, 2013 from http://ed.psu.edu/acsde/deos/deosnews/deosnews13_5.pdf).
- Bird, J., & Morgan, C. (2003). Adults contemplating university study at a distance: Issues, themes, and concerns. *International Review of Research in Open and Distance Learning*, 4(1) (Retrieved February 8, 2013, from http://www.irrodl.org/content/v4/bird_morgan.html).
- Boston, W. E., Ice, P., & Gibson, A. M. (2001). Comprehensive assessment of student retention in online learning environments. *Online Journal of Distance Learning Administration*, IV(1). Spring.
- Bowen, J., & Chen, S. (2001). The relationship between customer loyalty and customer satisfaction. *International Journal of Contemporary Hospitality Management*, 13(5), 213-217.
- Bloemer, J., deRuyter, K., & Peeters, P. (1998). Investigating drivers of bank loyalty: the complex relationship between image, service quality and satisfaction. *International Journal of Bank Marketing*, 16(7), 276-286.
- Braxton, J. M., Milem, J. F., & Sullivan, A. S. (2000). The influence of active learning on the college student departure process: Toward a revision of Tinto's theory. *Journal of Higher Education*, 75, 569-590.
- Braxton, J. M., Hirschy, A. S., & McCledon, S. A. (2004). Understanding and reducing college student departure. *ASHE-ERIC Higher Education Report*, 30(3). SF: Jossey-Bass.
- Byrne, B.M. (2001). *Structural Equation Modeling with Amos. Basic concepts, applications, and programming*, NJ: Lawrence Erlbaum Associates, Inc.
- Cater III, J. J., Michel, N., & Varela, O. E. (2012). Challenges of online learning in management education: An empirical study. *The Journal of Applied Management and Entrepreneurship*, 17(4), 76-96.
- Cheng, K., & Jang, S. (2010). Motivation in online learning: Testing a model of self-determination theory, *Computers in Human Behaviors*, 26, 741-752.
- Cokley, K. O., Bernard, N., Cunningham, D., & Motoike, J. (2001). A psychometric investigation of the Academic Motivation Scale using a United States sample. *Measurement and evaluation in Counseling and development*, 34(2), 109-119.
- Cyr D., Head, M., & Ivanov, A. (2006). Design aesthetics leading to m-loyalty in mobile commerce. *Information and Management*, 43(8), 950-963.
- Dabbagh, N. & Kitsantas, A. (2004). Supporting self-regulation in student-centered web-based learning environments. *International Journal on E-learning*, 3(1), 40-47.
- Day, G. (1969). A two-dimensional concept of brand loyalty. *Journal of advertising Research*, 9(3), 29-35.
- Deci, E.L. (1975). *Intrinsic Motivation*. NY: Plenum.
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behaviors*, NY: Plenum.
- Deci, E. L., & Flaste, R. (1996). *Why we do what we do: Understanding self-motivation*, NY: Penguin.
- Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11, 227-268.
- DeLotell, P. J., Milliam, L. A., & Reinhardt, M. M. (2010). The use of deep learning strategies in online business course to impact student retention. *American Journal of Business Education*, 3(12), December.
- DeShields Jr, O.W., Kara, A., and Kaynak, E. (2005). Determinants of business student satisfaction and retention in higher education: applying
- Devaraj, S., Fan, M., & Kolhi, R. (2002). Antecedents of B2B channel satisfaction and preference: validating e-commerce metrics. *Information Systems Research*, 13(3), 316-333.
- Diaz, D. P. (2000). *Comparison of student characteristics, and evaluation of student success, in an online health education course*. Ed.D. dissertation, Nova Southeastern University.
- Diaz, D., & Carnal, R. 2006. Term length as an indicator of attrition in online learning. *Innovate*, 2(5). Retrieved March 15, 2013 from <http://innovateonline.info/Index.php?view=article&id=196>.
- Fairchild, A.J., Horst, S.J., Barron, K.E. (2005). Evaluating existing and new validity evidence for the Academic Motivation Scale. *Contemp Educ Psychol.*, 30(3), 331-358.
- Herzberg's two factor theory, *International Journal of Educational Management*, 19(2/3).

- Guiffrida, D.A.; Lynch, M.F.; Wall, A.F.; & Abel, D.S. (2013). Do reasons for attending college affect academic outcomes? A test of a motivational model from a self-determination theory perspective. *Journal of College Student Development*, 54(2), March/April.
- Hardre, P. L., & Reeve, J. (2003). A motivational model of rural students' intentions to persist in, versus drop out of, high school. *Journal of Educational Psychology*, 95, 347-356.
- Hardy, D. W., & Boaz, M.H. (1997). Learner development: Beyond the technology. In T. E. Cyrs (Eds.), *Teaching and learning at a distance: What it takes to effectively design, deliver, and evaluate programs*, (pp. 41-48). SF: Jossey-Bass.
- Hart, C. (2012). Factors associated with student persistence in an online program of study: A review of the literature. *Journal of Interactive Online Learning*, 11(1), Spring, 19-42.
- Hallowell, R. (1996). The relationships of customer satisfaction, customer loyalty, and profitability: an empirical study. *International Journal of Service Industry Management*, 7(4), 27-42.
- Hegarty, N. (2010). Application of the Academic Motivation Scale to graduate school students. *The Journal of Human Resource and adult learning*, 6(2), December.
- Holder, B. (2007). An investigation of hope, academics, environment, and motivation as predictors of persistence in higher education online programs. *Internet and Higher Education*, 10, 245-260.
- Jones, B. D. (2010). An examination of motivation model components in face-to-face and online instruction. *Electronic Journal of Research in Educational Psychology*, 8(3), 915-944.
- Karaguvan, M. H. (2012). The adaptation of academic motivation scale to Turkish. *Educational Sciences: Theory & Practice*, 12(4), 2611-2618.
- Keller, J. M. (1987). Development and use of the ARCS model of motivational design. *Journal of Instructional Development*, 10(3), 2-10.
- Keller, J. M. (1999). Motivation in cyber learning environments. *International Journal of Educational Technology*, 1(1), 7-30.
- Leidner, D. E., & Jarvenpaa, S. L. (1995). The use of information technology to enhance management school education: A theoretical review. *MIS Quarterly*, 19(3), 265-291.
- Liljander, V., & Strandvik, T. (1994). The relation between service quality, satisfaction and intentions, in Kunst, P. & Lemmink, J. (Eds), *Quality Management in Service II*, Van Gorcum, Assen.
- Martens, R., Gulikers, J., & Bastiaens, T. (2004). The impact of intrinsic motivation on e-learning in authentic computer tasks. *Journal of Computer Assisted Learning*, 20, 368-376.
- Martin-Albo, J., Nunez, J.L.; & Navarro, J.G. (2009). Validation of th Spanish version of the situational motivation scale (EMSII) in the educational context. *The Spanish Journal of Psychology*, 29(2), 799-807.
- Muilenburg, L. Y., & Berge, Z.L. (2005). Student barriers to online learning: A factor analytic study, *Distance Education*, 26(1), 29-48.
- Niemiec, C. P., Lynch, M. F., Vansteenkiste, M., & Bernstein, J.; et al. (2006). The antecedents and consequences of autonomous self-regulation for college: A self-determination theory perspective on socialization. *Journal of Adolescence* 29(5), 761.
- Noel-Levitz (2013). 2013 student retention and college completion practices report for four-year and two-year institutions. Coralville, Iowa: Noel-Levitz. Retrieved from www.noellevitz.com/BenchmarkReports.
- Nunnally, J. C. (1978). *Psychometric Theory*, 2nd ed., NY: McGraw-Hill.
- Oliver, R. (1999). Whence consumer loyalty. *Journal of Marketing*, 63, 33-44.
- Omar, A., Kalulu, D., & Alijani, G. S. (2011). Management of innovative e-learning environments. *Academy of Educational Leadership Journal*, 15(3), 37-64.
- Pelletier, J.G., Fortier, M. S., Vallerand, R. J., Tuson, K. M., & Briere, N. M. (1995), Toward a new measure of intrinsic motivation, extrinsic motivation, and amotivation in sports: the Sport Motivation Scale (SMS). *Journal of Sport & Exercise Psychology*, 17, 35-45.
- Pittenger, A., & Doering, A. (2010). Influence of motivational design of completion rates in online self-study pharmacy-content courses. *Distance Education*, 31(3), 275-293.
- Powell, R., Conway, C., & Ross, L. (1990). Effects of student predisposing characteristics on student success. *Journal of Distance Education*, 5(1), 47-41.
- Qureshi, E., Morton, L. L., & Antonsz, E. (2002). An interesting profile –University students who take distance education show weaker motivation than on-campus student. *Online Journal of Distance Education*, 5, 90-100.
- Ribbink, D., Van Riel, A. C. R., Liljander, V., & Streukens, S. (2002). Comfort your online customer: quality, trust and loyalty on the internet. *Managing Service Quality*, 14(6), 446-456.
- Rodriguez, M. C., Ooms, A., & Montanez, M. (2008). Students' perceptions of online-learning quality given comfort, motivation, satisfaction, and experience. *Journal of Interactive Online Learning*, 7(2), Summer, 105-125.

- Rovai, A. P., Ponton, M. K., Wighting, M. J., & Baker, A. D. (2007). A comparative analysis of student motivation in traditional classroom and e-learning courses. *International Journal on E-learning*, 6(3), 413-432.
- Ryan, R. M. (1982). Control and information in the interpersonal sphere: An extension of cognitive evaluation theory. *Journal of Personality and Social Psychology*, 43, 450-461.
- Saade, R. G., Tan, W., & Nebebe, F. (2008). Impact of motivation on intentions online learning: Canada vs China. *Issues In Informing Science and Information Technology*, 5, 137-147.
- Scardamalia, M. & Bereiter, C. (1994). Computer support for knowledge-building communities. *The Journal of the Learning Sciences*, 3(3), 265-285.
- Shroff, R. H., Vogel, D. R., & Coombes, J. (2008). Assessing individual-level factors supporting student intrinsic motivation in online discussions: A qualitative study. *Journal of Information Systems Education*, 19(1), 111-126.
- Spady, W. (1970). Dropouts from higher education: An interdisciplinary review and synthesis. *Interchange*, 1, 64-65.
- Stover, J. B., De la Iglesia, G., Rial Boubeta, A., Fernandez, M. (2012). Academic Motivation Scale: adaptation and psychometric analyses for high school and college students. *Psychology Research and Behavior Management*, 5, 71-83.
- Stevens, T., & Switzer, C. (2006). Differences between online and traditional students: A study of motivational orientation, self-efficacy, and attitudes. *Turkish Online Journal of Distance Education*, 7(2), 90-100.
- Taghipour, H. A., Shahram, G., Jalali, M., Azizipour, H., Razaz Razagui, S. J., Javad Mousavian, S. (2012). Standarizing of Academic Motivation Scale. *Journal of Basic and Applied Scientific Research*, 2(2), 1186-1192.
- Terrell, S., & Dringus, L. (1999). An investigation of the effect of learning style on student success in an online learning environment. *Journal of Educational Technology Systems*, 28(3), 231-238.
- Tinto, V. (1975). Dropout from higher education: a theoretical synthesis of recent research. *Review of Educational Research*, 45, 89-125.
- Vansteenkiste, M., & Lens, W. (2006). Intrinsic versus extrinsic: Goal contents in self-determination theory: Another look at the quality of academic motivation. *Educational Psychologist*, 41, 19-31.
- Vallerand, R. J., Pelletier, L. G., Blais, M. R., Briere, N. M., Senecal, C., & Vallieres, E. F. (1992). The Academic Motivation Scale: A measure of intrinsic, extrinsic, and amotivation in education. *Educational and Psychological Measurement*, 52, 1003-1017.
- Vallerand, R. & Bissonnette, R. (1992). Intrinsic, extrinsic, and amotivational styles as predictors of behavior: A prospective study. *Journal of Personality*, 60(3), 559-620.
- Wighting, M. J., Liu, J., & Rovai, A. P. (2008). Distinguishing sense of community and motivation characteristics between online and traditional college students. *The Quarterly review of Distance Education*, 9(3), 285-295.
- Youn, S., & Vachon, M. (2005). An investigation of the profiles of satisfying and dissatisfying factors in e-learning. *Performance Improvement Quality*, 18(2), 97-113.
- Zeithaml, V., Berry, L., & Parasuraman, A. (1996). The behavioral consequences of service quality. *Journal of Marketing*, 60(2), 31-46.
- Zimmerman, B. J. (2002). Becoming s self-regulated learner: An overview. *Theory into Practice*, 41(2), 64-70.
- Zvacek, S. M. (1991). Effective affective design for distance education. *TechTrends* 36(1), 40-43

Appendix 1: Demographic characteristics

Demographics	Student Groups			
	Online		On-campus	
	Frequency	Percentage	Frequency	Percentage
Gender				
Female	73	76.8	67	69.8
Male	22	23.2	29	30.2
Total	95	100	96	100.0
Age				
18-25	22	23.2	45	47
26-35	37	38.9	31	32.3
36-45	27	28.4	14	14.5
46-55	8	8.4	6	6.2
56-65	1	1.1		
Total	95	100.0	96	100.0
Family Structure				
Single	20	21.1	40	41.7
Single with children	24	25.3	23	24.0
Couple with children	34	35.8	23	24.0
Couple without children	17	17.9	10	10.4
Total	95	100.0	96	100.0

Appendix 2: Motivation Rotated Component Matrix^a

Questionnaire	Component			Motivation Latent factors
	1	2	3	
For the pleasure of discovering new study technique (Var4)	.879	.186	.004	Intrinsic Motivation
For the excitement I feel when I am really involved in the learning activity (Var13)	.867	.314	-.002	
For the pleasure of discovering new learning strategies (Var27)	.848	.324	.040	
Because it is a good way to learn lots of things which could be useful to me in other areas of my life (Var17)	.845	.265	.060	
Because I feel a lot of personal satisfaction while mastering certain difficult online learning challenges (Var8)	.843	.231	-.010	
For the satisfaction I experience while I am perfecting my abilities (Var15)	.835	.348	.027	
For the pleasure it gives me to know more about the subject that I learn (Var2)*	.821	.168	.084	
For the pleasure that I feel while performing certain difficult assignments (Var20)	.814	.368	.041	
For the pleasure I feel while improving some of my weak points (Var12)	.813	.246	.012	
For the pleasure that I feel while using online techniques that I have never tried before (Var23)	.763	.481	.048	
Because it is one of the best ways I have chosen to develop other aspects of myself (Var11)	.754	.359	-.019	
For the intense emotions that I feel while I am taking my online course that I like (Var18)	.719	.468	.163	
Because I like the feeling of being totally immersed in the online learning activity (Var25)	.712	.484	.064	
Because it is absolutely necessary to take online courses if one wants to be knowledgeable (Var9)*	.672	.177	.258	
For the pleasure I feel in living exciting experiences (Var1)*	.641	.405	.186	
For the prestige of being an online student (Var10)*	.578	.565	.233	
Because I would feel bad if I was not taking time to do it (Var21)*	.523	.372	.260	
Because it allows me to be well regarded by people that I know (Var6)*	.512	.478	.359	

Because it is one of the best ways to maintain good relationships with my friends (Var24)	.285	.759	.373	Extrinsic Motivation
To show others how good I am at my online learning (Var22)	.414	.714	.250	
<i>Because, in my opinion, it is another way of meeting people (Var7)*</i>	.362	.672	.320	
Because I must take online courses to feel about myself (Var14)	.399	.646	.398	
<i>Because I must take online courses regularly (Var26)*</i>	.309	.629	-.144	
<i>Because people around me think it is important to be updated regarding learning supported by technology (Var16)*</i>	.464	.559	.294	
It is not clear to me anymore; I don't really think my place is in online learning (Var19)	-.090	.056	.874	Amotivation
I don't know anymore; I have the impression that I am incapable of succeeding in this course (Var5)	-.051	.131	.830	
<i>I used to have good reasons for taking online courses, but now I am asking myself if I should continue doing it (Var3)*</i>	.093	.101	.769	
<i>I often ask myself; I can't seem to achieve the goals that I set for myself (Var28)*</i>	.142	.281	.751	
I recommend taking online courses (Var32)		.921		Retention**
I intend to continue taking online courses (Var29)		.904		
My intention is to continue taking online courses rather than using traditional courses (Var30)		.872		
I say positive things about online learning (Var33)		.859		
<i>I will continue taking online courses even if I face problems (Var31)</i>		.829		

*Items eliminated from the analysis after applying confirmatory factor analysis (Items Total = 21)

**Extraction Method: Principal Component Analysis: 1 component extracted.

Appendix 3: Regression Weights: (Online – Unconstrained)

3.1: Regression Weights: (Online - Structural weights)

	Estimate	S.E.	C.R.	P
Retention <-- Amotivation	-.542	.080	-6.754	**
Retention <-- Intrinsic_Motivation	.320	.089	3.595	**
Retention <-- Extrinsic_Motivation	.243	.091	2.461	.014

3.2: Standardized Regression Weights: (Online - Structural weights)

	Estimate
Retention <--- Amotivation	-.578
Retention <--- Intrinsic_Motivation	.425
Retention <--- Extrinsic_Motivation	.333

3.3: Covariances: (Online - Structural weights)

	Estimate	S.E.	C.R.	P
Amotivation <--> Intrinsic_Motivation	.012	.007	1.598	.110
Intrinsic_Motivation <--> Extrinsic_Motivation	.064	.012	5.317	**
Amotivation <--> Extrinsic_Motivation	.033	.009	3.805	**

3.4: Correlations: (Online - Structural weights)

	Estimate
Amotivation <--> Intrinsic_Motivation	.189
Intrinsic_Motivation <--> Extrinsic_Motivation	.792
Amotivation <--> Extrinsic_Motivation	.512

3.5: Variances: (Online - Structural weights)

	Estimate	S.E.	C.R.	P
Intrinsic_Motivation	.079	.014	5.720	**
Extrinsic_Motivation	.084	.015	5.549	**
Amotivation	.051	.011	4.641	**

3.6: Regression Weights: (On Campus - Structural weights)

	Estimate	S.E.	C.R.	P
Retention <-- Amotivation	-.542	.0	-	**

	Estimate	S.E.	C.R.	P
Retention <-- Amotivation	-.542	.080	-6.754	**
Retention <-- Intrinsic_Motivation	.320	.089	3.595	**
Retention <-- Extrinsic_Motivation	.243	.091	2.461	.014

3.7: Standardized Regression Weights: (On Campus - Structural weights)

	Estimate
Retention <--- Amotivation	-.594
Retention <--- Intrinsic_Motivation	.350
Retention <--- Extrinsic_Motivation	.266

3.8: Covariances: (On Campus - Structural weights)

	Estimate	S.E.	C.R.	P
Amotivation <--> Intrinsic_Motivation	-.011	.009	-1.190	.234
Intrinsic_Motivation <--> Extrinsic_Motivation	.057	.011	4.990	**
Amotivation <--> Extrinsic_Motivation	.022	.010	2.319	.020

3.9: Correlations: (On Campus - Structural weights)

	Estimate
Amotivation <--> Intrinsic_Motivation	-.134
Intrinsic_Motivation <--> Extrinsic_Motivation	.716
Amotivation <--> Extrinsic_Motivation	.276

3.10: Variances: (On Campus - Structural weights)

	Estimate	S.E.	C.R.	P
Intrinsic_Motivation	.080	.014	5.784	**
Extrinsic_Motivation	.080	.015	5.500	**
Amotivation	.080	.017	4.784	**