Structural Equation Modeling Towards Online Learning Readiness, Academic Motivations, and Perceived Learning

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Abstract

The relationship between online learning readiness, academic motivations, and perceived learning was investigated via structural equation modeling in the research. The population of the research consisted of 750 students who studied using the online learning programs of Sakarya University. 420 of the students who volunteered for the research and filled the scales via the convenience sampling method constituted the research sample. The correlational research model was used in the research. The scales of online learning readiness, academic motivation, and perceived learning were applied to the participants. The relationship among the variables of the research and the research hypotheses for the model were tested via structural equation modeling. It was revealed as a result of the research that the online-learning readiness levels of students predicted their academic motivations directly and their perceived learning indirectly. It was also found that student academic motivations predicted their perceived learning directly. The proposed model was verified in accordance with the data obtained from the research. It was determined as a result of the model obtained from the research that academic motivation is effective in increasing perceived learning in online learning, and increasing readiness is an effective way to increase academic motivation.

Keywords: Online learning • Readiness • Academic motivation • Perceived learning

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The internet is one of the most important technologies effectively used in almost every area of human life today, primarily in education . The internet is used for distance education applications as a complete learning setting as well as for supporting face-to-face learning activities. Online learning stands out among distance education applications via the internet. Online learning is an important tendency in education (Cobb, 2009). In fact, the total number of students who have participated in online learning activities at least once has reached 6.7 million across the world according to data from 2011 (Allen & Seaman, 2012). The majority of these students have continued online learning at the university level. In Turkey, over 1 million higher education students have participated in online learning activities according to TUİK data from 2012. Many academic leaders state that online learning is as effective as face-to-face learning qualitatively and quantitatively (Allen & Seaman, 2012).

Opportunities presented through online learning are one of the basic reasons for the widespread use of online learning. It is possible to access the content of online learning anytime. The content provides access to up-to-date information since it can be updated easily. It can offer interaction and communication either synchronously or asynchronously with the people who participate in its presentation or the system (Demir Kaymak & Horzum, 2013). In online learning students are not passive but active. This activeness enables them to acquire learning experiences in depth, whereby they can develop thinking skills and identify, access, and use information sources more easily (Horton, 2000).

Among the advantages presented by online learning is that it centers the students and enables them to study at their own pace (Simonson, Smaldino, Albright, & Zvacek, 2006). Aside from this, it also helps students cooperate, interact, and communicate actively and intellectually with the content, the institution, the instructors, and other students (Moore & Kearsley, 2012). Online learning provides an opportunity for students to cooperatively learn. The process of cooperative learning helps students with the development of high-level thinking skills (Archer, Garrison, & Anderson, 1999). Students can also access information easily and complete online programs from wherever they are, such as at the workplace, through online learning (Ally, 2008).

Whole content can be offered via the internet in online learning. Face-to-face activities are not included in online learning (Allen & Seaman,

2012). In this sense, online learning is a much more different experience than the educational practices in which many students have had in the past. The readiness levels of students for this kind of learning is very important in distance education practices because student readiness levels for online learning are some of the factors that directly affect their attendance and dropout rate for this education (Demir Kaymak & Horzum, 2013).

Online Learning Readiness

Readiness is one of the factors included in the principles of learning and it affects learning. Defined as the body of skills needed by students to learn, it is affected by physical, social, and emotional development, by learning approaches, communication, and general information (Wynn, 2002). Readiness is considered to be in direct proportion to satisfaction of learning experiences (Gunawardena & Duphorne, 2000). Readiness which is effective in face-to-face learning is also effective in online learning, e-Learning, and distance education.

Warner, Christie, and Choy (1998) presented online learning readiness as a concept having three dimensions that include student preferences for types of distribution, their faith in electronic communication, and their own learning skills. E. Smith (1999) defined these dimensions as the need for skill, faith, and comfort concerning learning resources, and the need for self-control in learning. Smith, Murphy, and Mahoney (2003), and P. J. Smith (2005) stated that individual comfort with e-Learning and self-control with learning are the factors affecting online learning. Online learning readiness is defined as time management, self-learning management, having intrinsic motivation, and understanding the styles and experiences of self-learning (P. J. Smith, 2005). Factors affecting readiness are mentioned in the studies on online learning readiness. Factors affecting online learning readiness are satisfaction for learning experiences (Gunawardena & Duphorne, 2000); experiences of learning and comfort in online learning (Fogerson, 2005); communication, social and emotional development, and self-control (Davis, 2006); technical skills computer self-efficacy, and student preferences and attitudes toward computers (Pillay, Irving, & Tones, 2007); time limitations and insufficient access to technologies (Koo, 2008); individual characteristics, reading comprehension, and rational learning styles (Hukle, 2009); self-directed learning, motivation for learning,

computer/internet self-efficacy, learner control, and self-efficacy in online communication (Hung, Chou, Chen, & Own, 2010).

When the literature about online learning readiness is examined, it is seen that online learning readiness positively affects learning output such as interaction among students and perceived learning (Demir Kaymak & Horzum, 2013); cooperative working and academic motivation (Leigh & Watkins, 2005); achievement and continuation of education (Davis, 2006); as well as satisfaction, experience, and self-confidence (Fogerson, 2005) . Among these variables, academic motivation stands out both as a learning output and an indirect variable that affects other learning outputs.

Academic Motivation

Motivation is an explanatory concept that helps us understand why people act in certain ways (Schunk, 2007) and forms a theoretical framework used to explain the initiation, direction, density, permanence and quality of behavior, especially goal-oriented behaviors (Maehr & Meyer, 1997). Therefore, motivation plays an important role in student achievement (Eccless & Wigfield, 2002). It is seen in the studies on motivation that it is one of the most important factors affecting learning (Brophy, 2010; Hudley & Gottfried, 2008; Schunk, 2007).

Academic motivation which especially represents individual motivation towards academic activities is closely related to the self-efficacy beliefs that students have about themselves (Zimmerman, 2000), and a factor that affects student performance positively (Fortier, Vallerand, & Guay, 1995). Brown and Keith (1998) tried to define academic motivation by listing the important features of individuals with high academic motivation as being enthusiastic about learning, enjoying learning-related activities, and beliefs about school. On the other hand, academic motivation is also defined as the enthusiasm of a student about participating in classes and learning activities, and the extent of attention and effort the student puts into different engagements (Cave, 2003).

There are many different motivation theories that explain academic motivation (Woolfolk, 2000). One of the commonly used theories among them is the self-determination theory (SDT). This theory was suggested by Ryan and Deci (2000), pioneers of human motivation theories that emphasize the source of academic motivation. In this theory, academic motivation is divided into 3 categories:

intrinsic, extrinsic and amotivational. The self-determination theory is seen to be widely used in academic motivation research in online learning environments (Chen & Jang, 2010; Hartnett, 2010; Hartnett, George, & Dron, 2011).

Academic motivation plays an important role not only in the environments of face-to-face education but also online learning environments which center on the student. In the literature on distance education, academic motivation is also an important concept associated with the achievement of adults in distance education (Merisotis & Phipps, 1999; Moore & Kearsley, 2012). Similarly, Bird and Morgan (2003) found low academic motivation and lack of readiness to be among the causes of adult students leaving their education in distance education. Researches that emphasize this negative relationship between academic motivation and drop-out rates from online learning are widely available in the literature (Muilenburg & Berge, 2005; Simonson et al., 2006; Willging & Jonson, 2004). However, Holder (2007) did not find any significant difference between the academic motivation of students who left or continued online learning.

In the researches on academic motivation, while Devoid (2007) determined that academic motivation of students are similar in face-to-face and online learning, Rovai, Ponton, Wighting, and Baker (2007) found the intrinsic motivation levels of online learning students are significantly higher than those of students learning face-to-face. In a limited number of structure-equation modeling studies that address academic motivation in online learning, academic motivation has been associated with weekly study time, satisfaction, as well as expected and actual final grades (Chen & Jang, 2010). There are few studies on perceived learning.

Perceived Learning

When the researches on distance education are examined, the most investigated learning outputs of students seem to be variables such as achievement, satisfaction, and attitude (Davies, Howell, & Petrie, 2010; Gaytan, 2007; Horzum, 2012; Zawacki-Richter, Bäcker, & Vogt, 2009). Achievement is one of the most often considered variables among these. In fact, achievement is one the most referenced variables for the comparison of the researches between face-to-face and distance learning (Shin & Kim, 1999; Verduin & Clark, 1994).

Using achievement may not always give the desired result for distance learning students. After all, it can be seen that the dropout or continuance rates in programs at the beginning or during the course of distance education are both high (Chen & Jang, 2010; Nistor & Neubauer, 2010; Park & Choi, 2009; Shin & Kim, 1999). During education, information that the student has acquired or student perception of what they have learned may be different even though they may have scored low or high in the exams. Koriat and Bjork (2005; 2006) found in their research on controlled experimental settings that student perceptions and feelings toward their learning are greater than their achievements. On the other hand, Jiang and Ting (2000) found that there is no relationship between successful grades on written assignments and perceived learning.

The relationship between achievement and perceived learning can be explained with the types of exams used to measure achievement or other related variables. Measures performed using multiple-choice exams especially may remain at a cognitive level in terms of learning; they may in fact be limited to the top level skills of the cognitive level. Stein and Wheaton (2002) stated that perceived learning may be a better indicator of achievement than course achievements or final grades. Perceived learning is the body of beliefs and feelings related to current learning. Therefore it is a retrospective evaluation of the learning experience (Caspi & Blau, 2008).

When the related researches are examined, it is seen that perceived learning is most utilized in adult education and distance education programs (Fredericksen, Pickett, Pelz, Swan, & Shea, 1999; Glass & Sue, 2008; Stein & Wheaton, 2002; Wu & Hiltz, 2004), and perceived learning is a valid measure of the achievement of learning (Batista & Cornachione, 2005). Participation in class discussions and other related processes as well as the learning have an impact on perceived learning. Therefore, it is recommended that perceived learning should be used in distance education instead of test scores or the general point of achievement. Active participation in discussions, interacting with the instructor, and an effective design in online learning environments affect perceived learning positively (Swan, 2001). Perceived learning is associated with many other variables in online learning environments. Academic motivation is primarily one of them.

The academic motivations of online learning students for taking lessons play a role in their perceived learning (Fredericksen et al., 1999). In a study by Wu and Hiltz (2004), it was found that there is a positively significant relationship between student academic motivations and their perceived learning. Chen and Jang (2010), however, could not find any significant relationship between academic motivation and perceived learning in their research. In the research by Hytti, Stenholm, Heinonen, and Seikkula-Leino (2010), it was determined that intrinsic motivation has a negative impact and extrinsic motivation has a positive impact on the perceived learning of students. Contrary to this, Ferreira, Cardoso, and Abrantes (2011) found in their research that there is a positive relationship between intrinsic motivation and perceived learning. It can be seen in the previous researches that there is a relationship between academic motivation and perceived learning. However, the findings are contradictory. It seems to be important to investigate this relationship.

Woolfolk (2000) stated that motivation impacts the information acquired during the learning process and is affected by the acquired information. He also emphasized that motivation is impacted by the prior knowledge and readiness for learning as well as its conditions. In this sense, it is expected that readiness also affects perceived learning. Boeglin and Campbell (2002) found that student readiness for learning and their prior knowledge and skills concerning the technological infrastructure have a positive impact on their learning outputs. Haverila (2010; 2011) stated that there is a positive relationship between the experience of eLearning, the readiness provided by this experience, and perceived learning.

Aim and Importance of the Research

The aim of this research is to build a model that addresses the relationship between student online learning readiness, academic motivations, and perceived learning, as well as investigate the direct and indirect impacts among the variables of the model. It can be said in accordance with this aim that this research is:

- *original* because it examines the relationship between online learning readiness, academic motivations and perceived learning of online learning students,

- *actual* because it examines the variables and the relationships between them through structural equation modeling,

- *functional* because it leads the way for designers of online learning environments,

- and *necessary* because it mentions online learning which is increasingly popular both in our country and across the world.

Model of Research and Hypotheses

Although there are many studies on online learning in the literature, none of them have addressed the relationship between online learning readiness, academic motivations, and perceived learning of students of online learning. The following hypotheses forms the framework of the study:

i. Increasing student levels of online learning readiness will increase their academic motivations directly and their perceived learning indirectly.

ii. Increasing student academic motivations will directly increase their perceived learning.

Method

Research Design

The correlational research model was used in the research. Variables are immediately measured and the relationships between them are investigated in the correlational research model (Büyüköztürk, Kılıç Çakmak, Akgün, Karadeniz, & Demirel, 2012; Fraenkel & Wallen, 2006). In this study, the correlational research model was used since it was aimed at investigating the relationship between online learning readiness, academic motivation, and perceived learning of online learning students of different ages and from different programs.

Population and Sample

750 students studying using the online learning programs of Sakarya University's Adapazarı Vocational School during the spring term of the 2012-2013 academic year comprise the population of the research. 420 students who volunteered for the research and filled the questionnaires using the convenience sampling method constitute the research sample. The reason why the convenience sampling method was preferred is that the opportunity to reach online learning students was not always available and reaching these students via the internet was easier than other methods.

Of the students participating in the research, 52 (12.4%) study information management, 124 (29.5%) study computer programming, 44 (10.5%) study business management, 80 (19%) study electronic technologies, and 120 (28.6%) study mechatronics. 101 students (22.8%) in the study group are female and 319 students (77.2%) are male. The students in the study group fall within the age range of 18 to 53 and their average age is (±SD) 28.44 ± 7.97. When asked about their ability to use the internet, 155 (36.9%) of them reported that they are at a very good level, 177 (42.1%) are at a good level, 82 are at a medium level, and 6 (1.4%) of them are at a low level. Students have daily internet connections from half an hour up to 18 hours. The average time of daily internet usage for the students is (±SD) 5.20 hours ± 3.42. Among these students, 21 (5%) stated that they had had previous education in an online learning environment, and 399 (95%) stated that they had not had such an education. In addition, 330 (78.6%) of the students stated that they could have education using online learning for the rest of their lives while 90 (21.4%) said that they do not want to be educated in the online learning environment.

Tools

The scales of online learning readiness, academic motivation, and perceived learning were used in the research. The details of these scales are mentioned below.

Online Learning Readiness Scale (OLRS): Student levels of online learning readiness were measured using the OLRS. This is a 5-point Likert-type scale with 18 items. The original scale was developed by Hung et al. (2010). The five factors of the scale are computer/internet self-efficacy, self-directed learning, learner control, learning motivation, and online communication self-efficacy. The Turkish form of the scale was adapted by Demir Kaymak and Horzum (2013). The fit indexes of the scale obtained through confirmatory factor analysis were found to be acceptable and Cronbach's alpha internal-consistency coefficient was found to be .85. For this study, Cronbach's alpha internal-consistency coefficient was found to be .90.

Academic Motivation Scale (AMS): Student academic motivations were measured with the AMS. It is a 7-point Likert-type scale with seven factors and 28 items. The scale was developed by Vallerand et al. (1992) and adapted into Turkish by Demir (2008). The fit indexes of the scale as a result of confirmatory factor analysis performed for its validity exhibited a good fit. Cronbach's alpha internal-consistency coefficients for the scale factors were between .72 and .84.

Perceived Learning Scale: The perceived learning scale was prepared as a 5-point Likert-type scale with eight items as a result of the interviews of the researchers with field specialists and a literature review. For the scope and face validity of the scale, five instructors from the area of Computer and Instructional Technologies were asked for their expert opinion. The scale was reduced to five items in accordance with their expert opinions. Validity and reliability studies were conducted for the five-item scale. The validity and reliability studies of the scale were performed using the data collected from an independent group of 100 online learning students. Exploratory factor analysis was performed for the structure validity of the scale and the KMO value was found to be .84. According to Green and Salkind (2005), this value, being higher than .70, shows the sample size is sufficient. Secondly, it was determined through Bartlett's sphericity test (X^2 = 1221.46, p = .000) that the obtained data was suitable for factor analysis. The five-item scale turned out to have a single-factor structure as a result of the exploratory factor analysis performed depending on the principle components analysis. Therefore, no conversion was made to the scale. The load values of 5 items in the scale varied between 0.87 and 0.90. Items explained 64% of the total variance. The fourth item "I can easily remember the information I have learned through online learning" of the five items in the scale can be given as an example. The five-item internal consistency coefficient of the scale was found to be .92. Scores obtained from the five items are added to each other, and a score between 5 and 25 can be acquired from the scale.

Collection and Analysis of the Data

The necessary permissions were obtained to be able to perform the activities required for the research, and the questionnaire prepared through the scales was transformed into an internet form. This form was presented via a link in the learning management system used for the classes by students who had completed their first and second years by the end of the spring term of the 2012-2013 academic year, and the form was applied depending on the principle of voluntary participation. Information about the online learning application which the students participated in can be accessed at http://www.adamyo.sakarya.edu.tr/tr/i/20706/hizmetlerimiz. In the application, students were not asked for names, phone numbers, or internet protocol numbers. The volunteer students clicked the link and filled the form, and the obtained

data set was downloaded from the internet and transferred to the SPSS 21.0 software package by the researchers. While examining the obtained data set, data from 11 students who had left blank more than 2 items and exhibited a similar participation level in the questionnaire were excluded from the data set, and the statistics were obtained from the data of a total of 420 students. In the study, descriptive analyses, Pearson correlation coefficient, and structural equation modeling were used to examine the relationship between online learning readiness and perceived learning in the research. All assumptions of the structural equation modeling were met, and the covariance matrix and maximum likelihood method were preferred in the analysis. Descriptive and Pearson correlation coefficient analyses were performed via SPSS 21.0 and the structural equation modeling was performed via the LISREL 8.54 package software.

Findings

The main purpose of the research is to test a model that addresses the relationship between online learning readiness levels, academic motivations, and perceived learning of online learning students. Before testing the prepared model, the descriptive statistics related to the variables of the research (online learning readiness, academic motivation, and perceived learning) and the correlations between them were examined. Analysis results are given in Table 1.

Table 1
Descriptive Statistics and Correlations Between Variables

Variables	1	2	3
1. Online Learning Readiness (OLR)	1.00		
2. Academic Motivation (AM)	.41**	1.00	
3. Perceived Learning (PL)	.69**	.43**	1.00
Mean (Likert type mean score)	74.13 (4.11)	140.03 (5.00)	17.37 (3.47)
Standard Dev.	11.70	24.29	3.97

*p < .05. **p < .01.

When Table 1 is examined, it is seen that there are positive and significant correlations between online learning readiness, academic motivation, and perceived learning. It was found that there is a positive significant relationship between online learning readiness and academic motivation (r = .41,

$p < .05$); there is a positive significant relationship between online learning readiness and perceived learning ($r = .69$, $p < .05$); and there is a positive significant relationship between student academic motivations and perceived learning ($r = .43$, $p < .05$). All correlation values are positive. This shows that academic motivation and perceived learning increase when online learning readiness increases, and academic motivation and perceived learning decrease when online learning readiness decreases, too. And while perceived learning increases with academic motivation, so does it decrease similarly when academic motivation decreases. In addition, the relationships between all three variables are strong at a medium level since the correlation coefficients are between .41 and .69 (Green & Salkind, 2005). It is also understood that the scores of online learning students from the scales of online learning readiness, academic motivation, and perceived learning are higher than the midpoint score that can be gained from the scale. It can be accordingly concluded that the students have an above-average level for all three variables.

After these findings, the model test was performed using structural equation modeling between three variables of the research: online learning readiness, academic motivation and perceived learning. Figure 1 shows the result obtained from the structural equation modeling and the model shape. The maximum likelihood calculation was used in the structural equation modeling. The projected model was found to be highly fit to the research ($X^2 = 158.53$, $sd = 60$, $X^2/sd = 2.63$, $p = .00000$, $GFI = .94$, $AGFI = .92$, $CFI = .99$, $NFI = .98$, $NNFI = .98$, $IFI = .99$ and $RMSEA = .068$). Estimated structural equations of the model are given in Table 2.

Table 2
Estimated Structural Equation between Variables

Relation between variables	Estimated structural equation
AM – OLR	$AM = .83*OLR$, $R^2 = .88$
PL – AM	$PL = .97*AM$, $R^2 = .72$
PL – OLR	$PL = .80*OLR$, $R^2 = .63$

When Table 2 which shows the estimated structural equation between the variables is examined, it is understood that online learning readiness explains 63% of the perceived learning variance indirectly and academic motivation explains 72% of this variance. Online learning readiness also explains 88% of the academic motivation variance. These findings and the model obtained in Figure 1 verify both hypotheses of the research.

When the analyses of structural equation modeling are examined in terms of the sub-dimensions constituting the main variables, self-directed learning and learner control are found to be the important variables in the online learning readiness levels of online learning students. Self-directed learning explains 68% of the online learning readiness variance by itself, while learner control explains 58% of the variance. The self-directed learning variable is defined as individuals understanding their own needs for learning, establishing relationships between their needs and aims for learning, the identification of individuals and materials needed for learning, the selection and implementation of appropriate learning strategies, and individuals taking responsibility in the evaluation of the results of learning (Hung et al., 2010). It was revealed that students of online learning who take responsibility for their learning increase their online learning readiness.
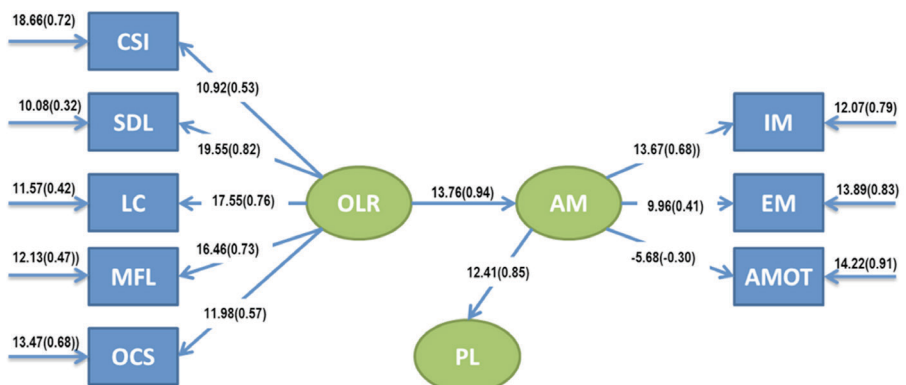

Figure 1: Structural equation modeling.

Another important variable in the online learning readiness of online learning students is learner control. Learner control is defined as the student determining and controlling the amount and order of the content, and the learning pace in the online learning environment (Hung et al., 2010). Learner control means that students skip the information they know within the contents, and prioritize the subjects they deem to be important, continuing their education in accordance with their own needs for learning, their learning pace being in the flow of the learning materials. In other words, students take their individual differences into consideration to plan and determine the flow of their learning process. As the level of learner control increases in online learning, it can be ensured that student's effective learning and performance with learning also increase.

When the intrinsic, extrinsic, and amotivational sub-dimensions of academic motivations in online learning are examined, it is seen that intrinsic motivation stands out more. Intrinsic motivation explains 47% of the latent variable variance of academic motivation. Intrinsic motivation means doing something because it is interesting or fun, and intrinsically motivated individuals do something to satisfy or entertain themselves (Deci & Ryan, 2002). Individuals with high intrinsic motivation insist on continuing distance education (Fjortoft, 1996). In online learning, students connect to the system when they are ready to learn and participate in the learning activities. In this case, the fact that students encounter interesting or satisfying learning material seems to be an important component.

When the standard coefficients obtained as a result of the analyses are taken into consideration, it is seen that increasing online learning readiness also increases academic motivation, and increasing academic motivation also increases perceived learning.

Conclusion, Discussion and Recommendation

It was aimed in the research to investigate the relationship among online learning readiness levels, academic motivations, and perceived learning of online learning students. In accordance with this purpose, a positive relationship was firstly found between students' online learning readiness and academic motivations, and online learning readiness was found to be a significant predictor of academic motivation in the structural equation modeling. These findings show that increasing levels of online learning readiness also increase student academic motivations. It is an expected situation that

individuals who are ready for online learning and have high levels of information, skills and efficacy also have high levels of academic motivations.

Secondly, a positive relationship was also found between online learning readiness, academic motivation, and perceived learning in the research. In the structural equation modeling, online learning readiness and academic motivation turned out to be the significant variables that predict perceived learning. These findings show that increasing online learning readiness and academic motivation increase the perceived learning level. This is consistent with the findings that online learning readiness (Boeglin & Campbell, 2002; Haverila, 2010, 2011) and academic motivation (Ferreira et al., 2011; Hytti et al., 2010; Wu & Hiltz, 2004) are positive predictors of perceived learning. Individuals with high levels of online learning readiness and academic motivation also have high levels of academic achievements and learning outputs (Horzum, Önder, & Beşoluk, 2014).

While planning the research, the effect of student online learning readiness on their academic motivations as an output in the process and the effect of their academic motivations on their perceived learning as a product were addressed within the framework of the system theory. The fact that motivation is impacted by readiness for learning and its conditions, and that academic motivation affects directly perceived learning indirectly as stated by Woolfolk (2000) supports the findings of the research.

Learner control and self-directed learning were found to be important components in terms of online learning readiness. These two components stand out in terms of predicting other variables in the model. This finding is consistent with the findings of Demir Kaymak and Horzum (2013). Self-directed learning and learner control are the components that include student planning in accordance with their knowledge and goals for learning, creation of the learning process according to their pace and needs, participation and being responsibile in the decision-making process for their learning (Hung et al., 2010). In this sense, academic motivation and perceived learning will be at a high level in online learning environments where self-directed learning and learner control are at a high level too.

It is expected that high levels of learner control in online learning readiness and self-directed learning will feature a high level of intrinsic motivation since they include the active participation of students and

them taking responsibility. Intrinsic motivation was also found to be an important component in terms of academic motivation in structural equation modeling. According to Deci and Ryan (2002), the fact that students are free to determine their own learning process in online environments benefit intrinsically motivated students. P. J. Smith (2005) stated that online learning readiness is directly related to intrinsic motivation and emphasized that it increases intrinsic motivation. Intrinsic motivation is based on doing something because it is fun and pleasant to do (Chen & Jang, 2010). In this sense, intrinsic motivation stands out from motivation types determined by individuals (Chen & Jang, 2010) and from online learning (Rakes & Dunn, 2010). These findings in the literature are consistent with the online learning readiness relationship to academic motivation.

As a result of the research, the fit indexes of the model for the variables and their relationships exhibit good fit according to Schermelleh-Engel, Moosbrugger, and Müller (2003). Consequently, the projected model emphasizes the importance of increasing online learning readiness and academic motivation to increase perceived learning in online learning. It is also important to increase online learning readiness to increase academic motivation in online learning. 63% of the perceived learning variable is explained by online learning readiness, 9% of it is explained by academic motivation, and 88% of academic motivation variance is explained by online learning readiness. It was set forth once more that readiness should be increased to make the learning process more effective and increase perceived learning in online learning.

In this study, it is evident in consistence with the research by Demir Kaymak and Horzum (2013) that online learning readiness has an impact on the learning results of online learning students. These findings require students who participate in online learning activities to have high levels of online learning readiness for this environment. It is considered to be important that orientation be provided for increasing self-directed learning and learner control to increase the levels of student online learning readiness to participate in the learning activity and provide them with assistance in terms of obtaining the desired outputs from the program, thus ensuring the continuity of the program and the quality of the education given. It is important in such programs that students have

acquired awareness of their qualifications and needs as well as the ability to take responsibility before starting the program (Demir Kaymak & Horzum, 2013). It was found as a result of the research that academic motivation is an important factor for perceived learning. In this sense, educators should try to motivate learners in online environments and provide them with activities and tools that will enable them to adapt to the system. Moreover, managers and support units should use supportive and assistive components rapidly and timely for motivating the learners (Hung et al., 2010).

The following recommendations are presented for future application, based on the research results:

-The academic motivation levels of online learning students can be investigated to increase their levels of perceived learning. Activities can be performed to increase the academic motivations of students with low levels of perceived learning.

-Support and educational services can be offered to increase the motivations of students with low academic motivation so that their online-learning readiness level can increase.

The following recommendations are presented for future researches.

-Data were collected and examined from the online learning students of associate degree in this research. Similar research can be conducted on undergraduate and postgraduate levels and the results can be compared for the generalization of the findings.

-The measuring tools were offered via the panel of the learning management system in which online learning is provided. The students volunteered to fill the tools and the convenience sampling method was used. New researches can be conducted with different sampling methods in the future.

-Part of the findings were obtained through correlational statistics methods in the research. The methods through which more detailed and significant information can be obtained could be used in future researches.

-Basic information was obtained in relation with the variables of online learning readiness, academic motivation and perceived learning. Studies on some variables such as achievement, satisfaction, motivation, attitude and meta-cognitive awareness can be conducted in future researches.

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