

EXAMINATION OF THE PREDICTION OF FLEXIBILITY FOR LEARNER SATISFACTION IN ONLINE COURSES

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ABSTRACT

Universities consider student satisfaction in order to improve the online education they give to students and to question the fulfillment of their responsibilities. Student satisfaction may depend not only on the educational institution but also on individual characteristics. One of these individual characteristics is flexibility, which requires multidimensional pedagogical responsibility in online learning environments. The aim of this study is to examine whether the flexibility of time management, the flexibility of teacher contact, and the flexibility of content predict online course satisfaction. In this research, the predictive relational research method was used. 1794 students participated in the research. During an academic term, students took an online Turkish II course at a university's Distance Education Research and Application Center. According to the results of the analysis, the students' three flexibility predicts their satisfaction and the model that explains their satisfaction is significant ($R^2=.60$; $p<.01$). In the model, the variable that most explains student satisfaction is the flexibility of content. In addition, other variables explaining student satisfaction are students' flexibility in teacher contact and their flexibility in time management. Based on the results of the research, implications, and suggestions are presented.

Keywords: Online course satisfaction, the flexibility of time management, the flexibility of teacher contact, the flexibility of content.

INTRODUCTION

Online learning environments are important in education, thanks to the flexibility in place, time and learning pace, and access to learning resources. Almost all of the higher education institutions in today's Turkiye have distance education centers and provide online education to their students (Council of Higher Education, 2020a). While general culture courses (e.g., Foreign Language, Turkish Language, Information Technologies, etc.) were given in these centers in previous years (Kocaturk Kapucu & Usun, 2020), most of the courses started to be given online during the pandemic period (Council of Higher Education, 2020b). With a decision taken in this period, up to 40% of the courses given in university curricula can be given with distance education methods "independent of the pandemic period" (Council of Higher Education, 2020a). Based on this decision, online courses will be an important part of higher education in the coming years.

There are some requirements to ensure the effectiveness and continuity of online learning. Readiness (Yurdugul & Alsancak Sarikaya, 2013), motivation (Shih et al., 2013), and self-directed learning skills (Wandler & Imbriale, 2017) of students in online learning environments are some of these requirements. In addition to these requirements for students, universities have an obligation to provide easy-to-use, accessible (Cheng ve Yuen, 2018), and interactive (Thoms ve Eryilmaz, 2014) online learning environments. Also, they have to provide technical support services to students and instructors and training on system usage (Islam, 2014). In order for universities to provide and develop these services effectively, they need to inspect and question the deficient and faulty practices, systemic improvements, and the education policy they have adopted in online courses. These inquiries and subsequent improvements will increase the quality of the education offered and thus provide satisfaction.

Identifying and ensuring student satisfaction is essential for online courses offered by higher education institutions. Because satisfaction is accepted as an indicator of the quality of education offered by higher education institutions in online courses (Ilgaz & Gulbahar, 2015; Parahoo et al., 2016). In addition, there are studies in which student satisfaction predicts the students' success, completing the course, its continuity, and the intention to take online courses in the future (Abuhassna et al., 2020; Chow & Shi, 2014; Daghan & Akkoyunlu, 2016; Hostetter, 2013; Levy, 2007; Liaw, 2008; Machado-Da-Silva et al., 2014; Oliver, 1980). Considering all these studies, student satisfaction in online courses is not a choice but a necessity for universities (Cramarenco, Burcă-Voicu, & Dabija, 2023). For this reason, it is seen that students' online course satisfaction and the factors affecting it are worth investigating.

There are several studies examining student satisfaction in online courses and the variables that affect it. These studies can be grouped under three headings: systemic factors, educational factors, and individual factors (Table 1). When these studies are examined, the system characteristics of the teaching environment are examined more than the educational and individual differences variables. When considering a learning process, students have many individual differences and these differences can affect their satisfaction with the online learning experience. One of them is the level of flexibility students perceive in the online learning process.

Table 1. Satisfaction Studies

Factors	Variables	Study
Systemic Factors	System type	(Almoeather, 2020)
	Ease of use of the system	(Cheng & Yuen, 2018; Islam, 2014; Islam & Azad, 2015; Kantoglu, Torkul, & Altunisik, 2013; Ohliati & Abbas, 2019)
	System functionality	(Islam, 2014; Islam & Azad, 2015)
	User support of the system	(Islam, 2014; Kantoglu, Torkul, & Altunisik, 2013)
	System quality / service quality	(Harsasi & Sutawijaya, 2018; Koh & Kan, 2020; Liaw, 2008; Machado-Da-Silva et al., 2014; Ohliati & Abbas, 2019; Turhangil Erenler, 2020)
	Interaction support of the system	(Cheng, 2020; Koh & Kan, 2020)
	Compatibility and accessibility of the system	(Islam & Azad, 2015)
Educational Factors	Presented information	(Koh & Kan, 2020; Machado-Da-Silva et al., 2014; Ohliati & Abbas, 2019)
	Course content	(Koh & Kan, 2020)
	Course design quality	(Cheng, 2020; Turhangil Erenler, 2020)
	Course structure	(Harsasi & Sutawijaya, 2018)
	Course duration	(Akyol, Vaughan, & Garrison, 2011)
	Instructor behaviors	(Turhangil Erenler, 2020)
	Usefulness of materials	(Kantoglu, Torkul, & Altunisik, 2013)
	Instructor-student interaction	(Kantoglu, Torkul, & Altunisik, 2013; Kuo et al., 2013; Turhangil Erenler, 2020)
Individual Factors	Social presence level	(Richardson & Swan, 2003)
	Online learning experience	(Abuhassna et al., 2020; Landrum, 2020)
	Online learning self-efficacy	(Landrum, 2020; Lim et al., 2021)
	Internet self-efficacy	(Abdel-Jaber, 2017)
	Self-directed learning level	(Abdel-Jaber, 2017)
	Using computer	(Kantoglu, Torkul, & Altunisik, 2013)
	Stress/anxiety	(Lux et al., 2022)
	Engagement	(Rajabalee & Santally, 2020; Lux et al., 2022)

Flexibility is a concept that has a history of nearly 50 years (Bell, Bowden, & Trott, 1997) and has been the subject of more research over the years with the opportunities brought by technology in education (Li & Wong, 2018; Veletsianos & Houlden, 2019). It has been stated in the studies that it is difficult to explain the definition and framework of this concept, which is used with various meanings in this time period (Jakupec & Garrick, 2000; Veletsianos & Houlden, 2019). Flexibility in learning is defined as students' learning at any time, frequency, and duration, in the learning styles they want, and determining their own learning situations (Van den Brande, 1993). This definition shows that in addition to what the system offers in teaching, students have an effortful role in the learning process to become flexible learners (Houlden & Veletsianos, 2019). Veletsianos and Houlden (2019), in their study which examined the articles published in the 40-year history of "Distance Education", one of the important journals in the field of distance education, stated in another definition that flexibility is not only related to the scope of "learning in a flexible place and at a flexible time" and but also requires pedagogical responsibilities. Accordingly, the student should be able to choose learning resources, learning activities, and assessment tasks (Naidu, 2017). In the study conducted by Cornelius, Gordon, and Ackland (2011) it was stated that the flexibility defined within the framework of the activity-focused model should draw the students' study routes towards their individual interests, the autonomy of decision making and planning would encourage independent learning, and it could provide different learning methods and resources. This definition indicates that students have the responsibility to decide what to and how to learn (Richardson, 2000; Zhang, Lou, Zhang, & Zhang, 2019). Considering all these definitions, online courses offered with different educational approaches (such as e-learning, virtual learning environments, and blended learning) support flexible learning and students can be flexible learners (Flannery & McGarr, 2014).

Online learning environments offer students the opportunity for flexibility in terms of learning place, time, duration, and access to learning content (Soffer, Kahan, & Nachmias, 2019). This opportunity is an important reason why students are willing to learn online (Jaggars, 2014). Because the flexibility offered in online learning environments is perceived positively by learners and is thought to improve learning (Soffer, Kahan, & Livne, 2017; Turan, Kucuk, and Cilligol Karabey, 2022). In fact, studies have shown that flexibility in online learning improves learning performance (Bergamin, Ziska, & Groner, 2010). The increase in learning performance will bring success. Success, on the other hand, can change the student's perception of other negative situations in the learning process. Therefore, the online learning process will provide satisfaction. On the contrary, failure in online courses can upset the student, cause a negative attitude of the student and reduce their satisfaction. This relationship between success and satisfaction has been proven by a meta-analysis study by Richardson et al. (2017). From this point of view, it can be thought that students' flexibility behaviors in online learning predict their satisfaction levels. The aim of this study is to "examine the prediction of satisfaction of flexibility in the online course".

In the research, the concept of flexibility was examined with students' perceived flexibility of time management, flexibility of teacher contact, and flexibility of content. The flexibility of time management allows them to determine the time they want to learn and their own learning pace; the flexibility of teacher contact refers to the ability to communicate with the instructor and to find different ways of communication. The flexibility of content, on the other hand, states that students can access the content they choose during their learning process and learn wherever they want (Kokoc, 2020). Within the framework of these definitions, this research answers the question "Do the flexibility of time management (FTimeM), the flexibility of teacher contact (FTeacherC), and the flexibility of content (FContent) perceived by students in the online learning process predict online course satisfaction (OCSatisfaction)?".

METHOD

In the research, the predictive relational research method, one of the relational research methods, was used in order to determine the flexibility of students in online courses to predict their satisfaction. The predictive relational research method is defined as determining the characteristics of those that have one of the two features that we know to be related and estimating and predicting the other feature (Fraenkel, Wallen, & Hyun, 2012).

Participants

Students who took the Turkish Language II courses in 14 faculties and 13 vocational schools of a state university during the spring semester of the 2020-2021 academic year participated in the research. 1794 students volunteered. 712 (39.7%) male and 1082 (60.3%) female students participated in the study. Of the participants, 1042 (58.1%) are studying at a faculty, and 752 (41.9%) are studying at a vocational school. While 636 (35.5%) of the students had the experience of taking online courses in previous years, 1158 (64.5%) did not take online courses.

Data Collection Tools

Flexibility to Learn in Online Course

The learning flexibility of the students in the online course was determined with the “Flexibility Scale in Open and Distance Learning”. The scale was developed by Bergamin, Ziska, and Groner (2010), revised by Bergamin, Werlen, Siegenthaler, and Ziska (2012), and adapted into Turkish by Kokoc (2020). The scale measures the perceived flexibility levels of university students in distance learning processes. It consists of nine items and three sub-dimensions. The sub-dimensions of the scale are the flexibility of time management ($\alpha=.85$), the flexibility of teacher contact ($\alpha=.72$), and the flexibility of content ($\alpha=.73$). The internal consistency coefficient for the entire scale was calculated as .83.

Students' Online Course Satisfaction

The “Online Course Satisfaction Scale” was used to determine the satisfaction of students in their online learning processes. The scale was developed by Bayrak, Tibi, and Altun (2020) in Turkish and aims to measure student satisfaction in online courses. The scale consists of eight items. The internal consistency coefficients for the scale are .93 (EFA), .95 (CFA-I), and .95 (CFA-II).

Implementation and Data Collection Process

In the 2020-2021 academic year, I worked in coordination with the Turkish Language Department and the Distance Education Research and Application Center in the presentation of the Turkish Language II course. The Turkish Language Department of the university prepared the contents of the Turkish Language II course. Three faculty members working in the department used the same topics, the same teaching materials, and the same teaching methods while presenting the course. The 14-week course was conducted with synchronous and asynchronous practices. We used a learning management system in the course and shared the online form of the scale on this platform at the end of the semester. Volunteer students participated by filling out this form.

Data Analysis

I used a Multiple Linear Regression Model (with Stepwise Technique) to analyze students' time management flexibility, teacher communication flexibility, and content flexibility predicting their online course satisfaction. Before analysis, I tested the assumptions of providing a sufficient number of participants, normal distribution of residuals, a linear relationship between dependent and independent variables, homogeneous distribution of variances, no multicollinearity between independent variables, and independence of residuals from each other. In addition to all these assumptions, I used Cohen's f^2 statistics for the effect size of the Multiple Linear Regression Model (Cohen, 1988).

FINDINGS

In this research, I examined the flexibility of time management, the flexibility of teacher contact, and the flexibility of content to predict online course satisfaction. Before analysis, I tested assumptions. The number of participants is sufficient. The variances showed normality, linearity, and homogeneity. When the tolerance

and VIF values are examined, there is no multicollinearity situation. Also, there is no autocorrelation. After examining the assumptions, the correlation between student flexibility levels and online course satisfaction to predict the model is below (Table 2).

Table 2. The Correlations between Students' Flexibility Levels and Online Course Satisfaction and Descriptive Statistics

	OCSatisfaction	n	\bar{X}	sd
OCSatisfaction	1.000	1794	3.46	1.00
FTimeM	.66*	1794	3.71	1.04
FTeacherC	.70*	1794	3.43	1.08
FContent	.71*	1794	3.72	.99

* $p < .01$

There are moderate correlations between online course satisfaction and the flexibility of time management ($r = .66$; $p < .01$), the flexibility of teacher contact ($r = .70$; $p < .01$), the flexibility of content ($r = .71$; $p < .01$) (Table 2). The result of the Multiple Linear Regression Model, in which students' perceived flexibility predicts their satisfaction, is below (Table 3).

Table 3. Multiple Linear Regression Analysis Findings on Predicting Online Student Satisfaction

Model	bj	S(bj)	95% CI	Correlations			t	p
				r	Partial	Part		
1 (Constant)	.78	.06	[.65, .90]				11.99	.00
FContent	.72	.02	[.69, .75]	.71	.71	.71	43.02	.00
2 (Constant)	.53	.06	[.41, .65]				8.70	.00
FContent	.46	.02	[.42, .50]	.71	.46	.34	22.09	.00
FTeacherC	.36	.02	[.32, .39]	.68	.38	.27	17.55	.00
3 (Constant)	.46	.06	[.34, .58]				7.61	.00
FContent	.35	.03	[.30, .40]	.71	.29	.20	12.94	.00
FTeacherC	.34	.02	[.30, .37]	.68	.36	.25	16.61	.00
FTimeM	.15	.03	[.10, .19]	.65	.13	.09	5.61	.00

Model 1: $R = .713$, $R^2 = .51$, $F = 1853.84$, $p < .01$; Model 2: $R = .77$, $R^2 = .59$, $F = 1276.23$, $p < .01$; Model 3: $R = .77$, $R^2 = .60$, $F = 876.74$, $p < .01$

According to the result, the flexibility of content predicts online course satisfaction in Model 1, which is significant ($F_{(1,1792)} = 1853.84$, $p < .01$). The model explains 51% of students' online course satisfaction ($R^2 = .51$). This means that 49% of students' satisfaction cannot be explained by the flexibility of content alone. According to the model result, it can be said that for each increase in students' flexibility of content, student satisfaction will increase by .72. Different findings were obtained in Model 2, which was analyzed.

In Model 2 analyzed, it is significant that students' flexibility of content and flexibility of teacher contact predicts online course satisfaction ($F_{(2,1791)} = 1276.23$, $p < .01$). The model explains 59% of the students' course satisfaction ($R^2 = .59$). 41% of student online course satisfaction cannot be explained solely by students' flexibility of content and flexibility of teacher contact. In this regard, it can be said that with each increase in students' flexibility of content, their satisfaction will increase by .46, and with each increase in students' flexibility of teacher contact, their satisfaction will increase by .36. With the addition of students' flexibility of time management to Model 2, the findings have changed.

Model 3, in which students' flexibility of content, flexibility of teacher contact, and flexibility of time management predict online course satisfaction is significant ($F_{(3,1790)} = 876.74$, $p < .01$). The model explains 60% of students' online course satisfaction ($R^2 = .60$). 40% of students' satisfaction is due to factors other

than these variables. According to the model, it can be said that students' satisfaction will increase by .35 with each increase in students' flexibility of content, by .34 with each increase in students' flexibility of teacher contact, and by .15 with each increase in students' flexibility of time management.

In this research, I used Cohen's (1988) f^2 statistics to determine the effect size values of the regression analysis. They are 1.04 for Model 1, 1.44 for Model 2, and 1.50 for Model 3. When compared with the limit values specified by Cohen (1988) to interpret the effect size, it can be said that the effect size values of all three models are large.

DISCUSSIONS AND CONCLUSION

The aim of this research is to examine the flexibility of students who take online courses to predict their satisfaction. The flexibility of students includes the flexibility of time management, the flexibility of teacher contact, and the flexibility of content in the study. According to the research findings, there are three types of flexibility in the model that most explain students' satisfaction. There are studies in the literature that emphasize that flexibility is important in having a positive attitude toward the online learning environment, regardless of its type (Asoodar, Vaezi, & Izanloo, 2016; Divjak, Rupel, & Lesnik, 2018; Harsasi & Sutawijaya, 2018; Ilgaz & Gulbahar, 2020; Turhangil Erenler, 2020). In addition, a systematic review study by Abdull Muttalib, Akim, and Jaafar (2022), concluded that flexibility is the most important factor that ensures student satisfaction in online learning during the pandemic. Accordingly, the findings support the results of similar studies.

According to the research findings, content flexibility is the one among the types of flexibility examined that most explain the variance in students' online course satisfaction. Online learning environments are suitable for students to access more resources. In this way, students can access the learning resources they want as an alternative to the existing content (Zhang, Burgos, & Dawson, 2019). When students access alternative learning content, they do not limit themselves and can learn more deeply. This situation brings student success in the courses and there is a relationship between success and content flexibility (Soffer, Kahan, and Nachmias, 2019). In addition, considering the relationship between success and satisfaction (Richardson et al., 2017), the flexibility of content in online courses can provide satisfaction. As a supporting result for this conclusion, the flexibility of the content developed by the instructors is a satisfying factor for the students (Khojasteh et al., 2023). Moreover, Turan, Kucuk, and Cilligol Karabey (2022) concluded that there is a relationship between general satisfaction with the emergency distance learning process and the flexibility of the content during the pandemic. At the same time, there are studies stating that open-access resources increase satisfaction levels (Machado-Da-Silva et al., 2014; Weller et al., 2015).

In the research, after the flexibility of content, the variable that most explains students' online course satisfaction is the flexibility of teacher contact. Keeping students in touch with their teachers in the online course is essential to ensure the continuity of learning, to prevent the student from dropping out of school, and not feel lonely and isolated. In addition, it is important for students' satisfaction to receive feedback and not feel anxious or uncomfortable during learning (Richardson et al., 2017). For all these reasons, it is expected result that students will be satisfied with the learning environments where they feel flexible in communicating with the instructors. Similar studies support this conclusion (e.g., Turan, Kucuk, and Cilligol Karabey, 2022). In addition, although there are studies that argue that students cannot communicate as much as in face-to-face education in the online learning environment (e.g., Machado-Da-Silva et al., 2014), it is shown that students' communication with their teachers provides more satisfaction (Faize & Nawaz, 2020; Nasir, 2020).

As a result of this research, the flexibility of time management predicts student satisfaction in online courses. Online learning environments provide the opportunity to be flexible in time management to students (Soffer, Kahan, & Nachmias, 2019) and is even seen as its most important feature (Harsasi & Sutawijaya, 2018). Students generally prefer online courses because of time flexibility (Machado-Da-Silva et al., 2014). In addition, the flexibility of students to access the content at any time is important in preventing school dropout behaviors (Weller et al., 2015). Considering all these studies, it is expected result that students who are more flexible about time management in the online course will be more satisfied. In addition, the flexibility of time management is the variable that explains the model the least when compared to other types

of flexibility. Turan, Kucuk, and Cilligol Karabey (2022), who examined the variables that predicted general satisfaction with emergency remote teaching during the pandemic period, reached the opposite of this result. The reasons for this result may be the examination of students' satisfaction with the whole emergency remote teaching process during the pandemic period and the low level of satisfaction with emergency remote teaching (Turan, Kucuk, and Cilligol Karabey, 2022).

Student satisfaction is important in terms of predicting the success of the teaching process, ensuring the continuity of the student, and gaining the behavior of taking online courses again in the future. In order to ensure and increase students' satisfaction, some implication suggestions can be presented based on the results obtained from the research. Higher education institutions and other related institutions can increase student satisfaction by offering students content in different presentation types (e.g., video, animation, text, graphics, etc.) in online courses. Therefore, students should not learn from one type of presentation in the content, and the contents should be prepared in different presentation types. Content differences should not be limited to the material only, different methods and techniques should also be used. Approaches such as gamification, product-oriented, and problem-solving can be used in online courses as well as in the classroom. In addition, it is important that the online course has a responsive design for different devices (especially mobile devices) so that students can access it anywhere and from any device. This design should automatically analyze students' interaction with learning content, identify possible learning deficiencies in students, and alert teachers and students about these deficiencies. This design should also have a chat panel, the usability of this panel should be high, and students should be able to live chat with teachers on this panel. In order to support this communication, in addition to the system features, the instructors should encourage their students to communicate comfortably and pedagogical in-service training should be provided on this situation. In this training, tips can be given so that the students do not feel nervous or uncomfortable while in contact with the instructors and that the instructors can give quality feedback. Moreover, the flexibility of time management, which is one of the most prominent features of online courses, should be provided. For this, it is necessary to have more asynchronous learning contents and activities. In this way, students will be able to plan their own learning and learn at any time, duration, and pace they want. Also, an officer of the institution can guide students in making these plans in online courses. In addition to all these implication suggestions, there are studies that offer vision and policies that emphasize flexible learning (e.g., Andrade & Alden-Rivers, 2019).

Limitations

This study has some limitations. While determining the satisfaction of the students, I evaluated the Turkish Language II course in general but did not evaluate the content, presentation type, method, or technique offered in the online course. As a limitation of this study, it is important to re-investigate more customized activities in the online course. In addition, it is valuable to investigate with qualitative methods to obtain in-depth information about satisfaction. Another limitation of the study is the measurement tool. The Online Course Satisfaction Scale is limited in determining satisfaction with the assessment and evaluation practices in the course. Therefore, the relationship between students' flexibility and their satisfaction with assessment and evaluation practices should be examined. Also, this research is limited to three types of flexibility. In future research, the relationship between different types of flexibility and satisfaction from this study can be examined (e.g., students' flexibility in communicating with other students).

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