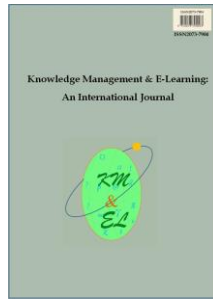


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## **Associations between university students' online learning preferences, readiness, and satisfaction**

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**Abstract:** The aim of this study was to examine the associations between the preferences, readiness, and satisfaction of freshman learners after taking online courses. The study group was comprised of Turkish students (892 females, 396 males) who attended their first-year classes at a public university. Participating students attended courses in different departments, but all took these courses for one year online. Data were analysed using optimal scaling analysis. Nonlinear canonical correlation analysis (OVERALS) was used as the variables examined were of different scale levels. According to our findings, learners who preferred face-to-face format were individuals with low levels of learner control, motivation, and satisfaction, and individuals who preferred the online format had high satisfaction levels. Individuals who preferred to take courses in a blended format had low or medium levels of self-directed learning, no previous online course experience, and a medium level of control.

**Keywords:** Student preferences; Online learning; University students; Readiness for online learning; Satisfaction

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### **1. Introduction**

Online learning has become a fast-growing trend, especially in higher education and professional life. Many universities view online education as a critical component of their strategic enrollment plan to accommodate students' needs (Allen & Seaman, 2013). In addition, online learning has similarly gained popularity in professional life. According to the LinkedIn Learning (2019) Workplace Learning Report, 59% of talent developers spent a greater portion of their budget on online learning than three years before.

Due to this increase in popularity and use, students must be prepared to participate and gain experience in online learning, especially after they graduate from university (Ferguson et al., 2015; Smith & Rupp, 2004; Sullivan et al., 2019). Hence, many universities offer face-to-face and online learning courses (Ferguson et al. 2015). According to Going the Distance Online Education in the United States report 2011,

thirty-one percent of all higher education students took at least one course online (Allen & Seaman, 2011). In this process, some universities offer their students the option of taking online courses (Dobozy & Ifenthaler, 2014), while others offer mandatory courses online to give students experience. One reason behind the move to provide learners with online learning experience is that, as in other contexts, learner preference is affected by their previous exposure and experience (Educase, 2019; Young & Norgard, 2006; Tichavsky et al., 2015). Accordingly, it can be said that an examination of learner preferences after taking online courses is an essential indicator for evaluating policies calling for mandatory online course experience. In addition, students' feedback on which type of course delivery method is preferred should be investigated so institutions can better serve their students (Marquis & Ghosh, 2017).

A review of studies on student preferences found no difference in terms of success but that most students preferred face-to-face environments (Kemp & Grieve, 2014; Diebel & Gow, 2009; Warner et al., 1998). However, other studies have reported different results (Boghikian-Whitby & Mortagy, 2016; Lim et al., 2007; Marquis and Ghosh, 2017; Owston et al., 2013; Pechenkina & Aeschliman, 2017). It is suggested that there is a need for further research on this question (Marquis & Ghosh, 2017).

Learner preferences for learning environments have been examined in terms of their achievement goals (Clayton et al., 2010), learning styles (Buch & Bartley, 2002), personalities (Boghikian-Whitby, & Mortagy, 2016), perception towards the lessons (Wisneski et al., 2017), readiness and motivation (Keskin & Yurdugül, 2020), and different demographic data (Raturi, 2018) in the literature. Qualitative studies have also been conducted on this subject (Dobozy & Ifenthaler, 2014; Ilgaz & Gülbahar, 2017). These studies are essential for student profiling, but a holistic examination of the learners' experience and learners' characteristics may help to improve the determined decision.

## 2. Online learning preference, readiness, and satisfaction

The development of e-learning was made possible through technological and pedagogical developments. Garrison (2011) defined e-learning as electronically mediated asynchronous and synchronous communication for the purpose of constructing and confirming knowledge. Online and blended learning are two primary applications that constitute e-learning (Garrison, 2011). The proportion of content delivered online is used to determine the differences between face-to-face, blended, and online learning. According to Allen and Seaman:

*Online courses/MOOCs are those in which at least 80 percent of the course content is delivered online. Blended (sometimes called hybrid) instruction has between 30 and 80 percent of the course content delivered online. Face-to-face instruction includes courses in which zero to 29 percent of the content is delivered online; this category includes both traditional and web facilitated courses.* (2008, p. 4, 2013, p. 7)

Recently, the use of blended and online learning environments has rapidly become widespread (Allen & Seaman, 2008, 2013; Garrison, 2011). Universities have started to take their courses online as well as to make certain courses accessible to everyone with massive open online courses. In this way, universities are able to take an active role in educating society as a whole and providing affordable pathways to lifelong learning (Barman et al., 2019). Massive open online courses in online learning

environments have made it possible to specialize in different topics from different places (Evans & Baker, 2016). In order to benefit from these opportunities, training for students given at the university level also focus on providing learners with online learning experience.

Learning environment preferences are affected by people's past experiences and exposure to the environment (Educase, 2019; Young & Norgard, 2006; Tichavsky et al., 2015). Studies on this subject have shown that students with experience in one or more online courses prefer the online environment (Young & Norgard, 2006; Tichavsky et al., 2015). Thanks to massive open online courses, many learners may be considered to have previous experience with online courses before coming to university. However, to our knowledge no studies related to this have been published in the literature.

Learner satisfaction with the online learning process they experience also affects their intention to continue using these environments (Artino, 2010; Chiu et al., 2007b). Satisfaction is determined by "the attention they receive from teachers and from the system they work in to meet their needs" (Simonson et al., 2015). Therefore, learners' satisfaction with online learning appears to be an important factor showing the quality of the online learning environment (Ilgaz & Gülbahar, 2015; McGorry, 2003). Factors affecting learners' satisfaction has been examined in several studies (Barbera et al., 2013; Chiu et al., 2007a; Çakır, 2014; Pham, et al., 2019).

Web-based environments are different from face-to-face learning environments by nature (Hung et al., 2010). Online learning readiness is an important indicator that learners can benefit from online courses (Dray et al., 2011; Joosten & Cusatis, 2020; Keskin & Yurdugül, 2020). In addition to their experience, learners must have the readiness to participate in online learning in order to continue learning in these environments (Yurdugül & Sarıkaya, 2013). Yu (2018) emphasized that educators and administrators in higher education should focus more on their students' online learning readiness.

Being ready to learn online requires technical skills such as computer and internet ability as well as learning styles, preferences, and strategies that may be related to students' online learning (Smith, 2005). In the literature review (2004-2013) by Rohayani (2015), e-learning readiness were examined using knowledge, skill, experience, social and psychological constructs. Hung et al. (2010) developed an online learning readiness scale of five dimensions: self-directed learning skills, computer and internet self-efficacy, learner's control, motivation, and online communication self-efficacy.

Knowles (1975) defined self-directed learning as the processes of an individual diagnosing their learning needs, setting learning goals, determining the resources needed for learning, choosing appropriate learning strategies, and evaluating their learning outcomes. The author also stated that self-directed learners knew from whom and when to ask for help. In addition, learner motivation is known to be one of the most important components impacting learning. Learners' external or internal motivation has important effects on learning performance (Hung et al., 2010). In online learning environments, both self-directed learning and learning motivation are important components. Also important in web-based learning environments is the component of learner control. When learners are allowed to control the learning process, they can take a more personalized approach (Hung et al., 2010). The necessary communication skills vary according to the online learning environment (Hung et al., 2010). In addition, assessments of an individual's perceptions on the use of a particular technology and their ability to use that technology in online environments is especially important (Hung et al., 2010). This composes the computer and internet self-efficacy component.

Similarly, Watkins et al. (2004) developed a scale based on the individuals' access to learning systems. It is believed that technology access problems in a web-based process negatively affect learner preference. It is clear that access needs to be further examined in the literature.

Çakır and Horzum (2015) stated that pre-service teachers should increase their online learning readiness during their university education in order to be successful in distance learning in their professional life. In their first study on readiness, Warner et al. (1998) reported that university students were not ready for online learning. In the same study, it was concluded that students preferred face-to-face environments. Starting from these findings, the aim of this study was to examine the associations between the preferences, readiness, and satisfaction of learners who have gained online learning experience in the first year of university. In addition to these factors, the model examined whether students experienced any access problems that may create an association with their preference factor, whether they have previous experience with online courses, and yearly computer usage.

### **3. Method**

Data were analysed using optimal scaling analysis. Data used in the research were of different scale levels and thus nonlinear canonical correlation analysis (OVERALS) was employed to determine associations among them. Continuous variables were categorized in order to add them to the model (Filiz & Kolukısa, 2012). Accordingly, cut points for the continuous data were determined and converted into categorical variables.

Nonlinear canonical correlation analysis method (OVERALS) can be utilized to reveal the similarities of two or more data sets (IBM, n.d.; Van der Burg et al., 1994) and is very useful in the graphical representation and interpretation of data through exploration of similar factors and relationships between multi-dimensional variable sets (Thanoon et al., 2015). Nonlinear canonical correlation analysis (OVERALS) uses the most appropriate scaling to generalize the canonical correlation analysis procedure (IBM, n.d.). Since it does not have assumptions like other multivariate analysis techniques and works with categorical data, it is utilized in many fields.

#### *3.1. Participants*

The study group was made of up students attending their first year at a public university and taking Turkish Language I and II courses via distance learning (women = 892; men = 396). The mean age of the participants was 19.76 year, with a standard deviation of 2.038. Students attended courses in a variety of departments (medicine, education, engineering, economy, etc.) and took Turkish Language I and II courses for one year via distance learning. Courses were both synchronous and asynchronous and were conducted using the Blackboard learning management system.

#### *3.2. Data collection*

Data collection tools were posted online at the end of the semester using the learning management system (Blackboard).

### 3.2.1. Demographic survey

The demographic survey was developed by the author and expert opinions were obtained. The demographic survey requested that students report their (a) time of computer usage (year categories), (b) preference (face to face, blended, online), (c) internet access problems (yes/no), and (d) previous online course experience (yes/no).

### 3.2.2. Online course satisfaction scale

The satisfaction scale consisted of eight items developed to determine learner satisfaction of the online course ( $\chi^2 / sd = 3.60$ ; RMSEA = 0.046; GFI = 0.988; CFI = 0.995; NNFI = 0.992) (Bayrak, Tibi, & Altun, 2020). The scale was structured as a five-point Likert scale with 1- strongly disagree and 5 strongly agree, and had a reported internal consistency coefficient of 0.937. The internal consistency coefficient calculated in the current study was 0.944. Survey items included sentences such as “I am satisfied that my needs are met in the online learning environment.” and “I am satisfied to communicate effectively with my teacher throughout the semester.”.

### 3.2.3. Online learning readiness scale

Hung et al. (2010) reported an online learning readiness scale consisting of the five dimensions of self-directed learning skills, computer and internet self-efficacy, learner’s control, motivation, and online communication self-efficacy. The Online Learning Readiness Scale (Hung et al., 2010) was adapted to Turkish by Yurdugül and Srakaya (2013) ( $\chi^2 / sd = 4.63$ ; RMSEA = 0.074; GFI = 0.94; CFI = 0.94; NFI = 0.92). The internal consistency coefficients calculated for the subfactors in the current study are given in Table 1. The internal consistency coefficients’ values were between 0.80 and 0.92. For the nonlinear canonical optimal scaling analysis, cut points for these factors were determined. Thus, the grouping was not affected by the skewness of the data. A five-point Likert scale was used. Table 2 displays both the cut points and the highest and lowest scores that can be obtained in each factor.

**Table 1**  
Reliability coefficients of subfactors for online learning

	Reliability coefficient (alpha)*	Reliability coefficient (alpha)
CI_SE: Computer and Internet self-efficacy	0.92	0.855
SlfDrct: Self-directed learning	0.84	0.835
LrnCont: Learner control	0.85	0.818
LrnMot: Learner motivation	0.80	0.893
OC_SE: Online communication self-efficacy	0.91	0.854

*Note.* \* as reported in the adaptation or development work

**Table 2**  
Cut points of factors' score

	Min	Max	Low group	Medium group	High group
CI_SE	3	15	3-7	7.1-11	11.1-15
SlfDrct	5	25	5-12	12.1-18	18.1-25
LrnCont	3	15	3-7	7.1-11	11.1-15
LrnMot	4	20	4-9	9.1-15	15.1-20
OC_SE	3	15	3-7	7.1-11	11.1-15
Satisfaction	8	40	8-19	19.1-29	29.1-40

*Note.* CI\_SE: Computer and Internet self-efficacy, SD: Self-directed learning, LC: Learner control, LM: Learner motivation, OC\_SE: Online communication self-efficacy

#### 4. Results

The aim of this study was to examine the associations between the preferences, readiness, and satisfaction of learners who gained online learning experience in the first year of university. As seen in Table 3, 32.92% of learners said they preferred face-to-face learning environments, 53.57% preferred online, and 13.51% preferred blended environments. The percentage of students who had previous online course experience was 14.36%. The optimal scaling level and percentages of the variables are shown in Table 3. It was found that 62.03% of students reported a high level of satisfaction with the online course (Table 3). More than 60% of participants reported high online communication self-efficacy and self-directed learning in the online learning environment. However, only 45% reported high learner control and motivation for learning. In addition, 65.37% of students experienced internet access problems during the course process.

**Table 3**  
Variables for two sets

	Variable	Category	Frequency	%	Optimal Scaling Level
Set 1	Preference	Face to face	424	32.92	Single Nominal
		Online	690	53.57	
		Blended	174	13.51	
	Time of computer usage	<1 year	122	9.47	Ordinal
		1-4 year	138	10.71	
		5-7 year	239	18.56	
		8-10 year	328	25.47	
		10 year +	461	35.79	
	Internet access problem	Yes	842	65.37	Single Nominal
		No	446	34.63	
Online course experience	Yes	185	14.36	Single Nominal	
	No	1103	85.64		

Set 2	Satisfaction	SAT_L (Low)	135	10.48	Ordinal
		SAT_M (Medium)	354	27.48	
		SAT_H (High)	799	62.03	
Computer and internet self-efficacy	Computer and internet self-efficacy	CI_SE_L (Low)	114	8.85	Ordinal
		CI_SE_M (Medium)	479	37.19	
		CI_SE_H (High)	695	53.96	
Learner control	Learner control	LC_L (Low)	191	14.83	Ordinal
		LC_M (Medium)	533	41.38	
		LC_H (High)	564	43.79	
Online communication self-efficacy	Online communication self-efficacy	OCSE_L (Low)	101	7.84	Ordinal
		OCSE_M (Medium)	389	30.20	
		OCSE_H (High)	798	61.96	
Self-directed learning	Self-directed learning	SD_L (Low)	64	4.97	Ordinal
		SD_M (Medium)	386	29.97	
		SD_H (High)	838	65.06	
Motivation for learning	Motivation for learning	LM_L (Low)	140	10.87	Ordinal
		LM_M (Medium)	558	43.32	
		LM_H (High)	590	45.81	

For this model, two sets were created. It is suggested that highly correlated variables and put together in the same set (IBM, n.d.). The Pearson correlation coefficient between satisfaction and computer and self-efficacy was 0.317 ( $p < 0.05$ ); between satisfaction and learner control was 0.551 ( $p < 0.05$ ); between satisfaction and online communication self-efficacy 0.458 ( $p < 0.05$ ); between satisfaction and self-directed learning was 0.320 ( $p < 0.05$ ); and between satisfaction and motivation for learning was 0.637 ( $p < 0.05$ ). Therefore, set 2 was created with these variables.

Fit and loss values were analyzed to determine the extent to which the nonlinear canonical correlation analysis results reflect the association between the data sets (IBM, n.d.). In the current study, the compliance value for the analysis was 1.450. Since the model was examined in two dimensions, the highest fit value was 2. Accordingly, a fit value of 1.450 can be considered an acceptable value for analysis (see Table 4).

**Table 4**  
Summary of analysis

		Dimension		
		1	2	Sum
Loss	Set 1	.217	.332	.550
	Set 2	.218	.332	.550
	Mean	.217	.332	.550
Eigenvalue		.783	.668	
Fit				1.450



Component loading variables higher than the origin were considered the most important for analysis (Meulman & Heiser, 2005). Weights and Component Loadings values of the factors in the model are given in Table 5. According to these values, the factors of computer usage, preference, level of satisfaction (Sat\_G3), and level of learning motivation (LM\_G3) were the most important for analysis.

**Table 5**  
Weights and component loadings

Set		Weights		Component Loadings	
		Dimension		Dimension	
		1	2	1	2
1	Time of computer usage	-.031	<b>.720</b>	-.167	<b>.745</b>
	Preference	<b>-.807</b>	-.246	<b>-.856</b>	-.107
	Internet access problem	-.215	.155	-.375	.225
	Online course experience	.047	-.224	.145	-.315
2	Sat_G3	<b>-.575</b>	-.138	<b>-.766</b>	-.030
	CI_SE_G3	-.006	<b>.807</b>	-.235	<b>.725</b>
	LC_G3	-.298	-.330	<b>-.578</b>	-.074
	OCSE_G3	.051	-.081	-.226	-.006
	SD_G3	.284	.013	-.043	.156
	LM_G3	-.320	.208	<b>-.599</b>	.248

*Note.* CI\_SE: Computer and Internet self-efficacy, SD: Self-directed learning, LC: Learner control, LM: Learner motivation, OC\_SE: Online communication self-efficacy

Based on the Total column of the Single Loss column in Table 6, we decided that there was no need to change the scale levels of the variables. Computer usage, preference, satisfaction, and computer and internet self-efficacy variables were the most important variables for analysis. Of these variables, preference and satisfaction were separated in the first dimension, and the time for computer usage and computer and internet self-efficacy were separated in the second dimension.

The method presented a graphic where associations can be seen (Fig. 1). Learners who preferred face-to-face courses had lower levels of learner control, motivation to learn, and course satisfaction while those who preferred the online environment had high satisfaction, learner control, motivation to learning levels, and no internet access problems. Those who preferred to take courses in a blended environment had low or medium levels of self-directed learning, no previous online course experience, and a medium level of control. However, the percentage of students who preferred a blended environment was low, and the blended variable was close to the origin. In addition, learners who had used a computer for 10 years or more were more likely to have previously experienced online lessons and had a high perception of computer and internet self-efficacy. However, it was seen that these factors act independently of an individual's preferences.

**Table 6**  
Fit and loss values

Set		Multiple Fit			Single Fit			Single Loss		
		Dimension			Dimension			Dimension		
		1	2	Sum	1	2	Sum	1	2	Sum
1	Time of computer usage <sup>a</sup>	.002	.518	<b>.520</b>	.001	<b>.518</b>	.519	.001	.000	.001
	Preference <sup>b</sup>	.651	.061	<b>.712</b>	<b>.651</b>	.061	.712	.000	.000	.001
	Internet access problem <sup>b</sup>	.046	.024	.070	.046	.024	.070	.000	.000	.000
	Online course experience <sup>b</sup>	.002	.050	.052	.002	.050	.052	.000	.000	.000
2	Sat_G3 <sup>a</sup>	.331	.021	<b>.352</b>	<b>.331</b>	.019	.350	.000	.002	.002
	CI_SE_G3 <sup>a</sup>	.000	.651	<b>.651</b>	.000	<b>.651</b>	.651	.000	.000	.000
	LC_G3 <sup>a</sup>	.089	.109	.198	.089	.109	.198	.000	.000	.000
	OCSE_G3 <sup>a</sup>	.003	.007	.009	.003	.007	.009	.000	.000	.000
	SD_G3 <sup>a</sup>	.081	.000	.081	.081	.000	.081	.000	.000	.000
	LM_G3 <sup>a</sup>	.103	.044	.147	.103	.043	.146	.000	.001	.001

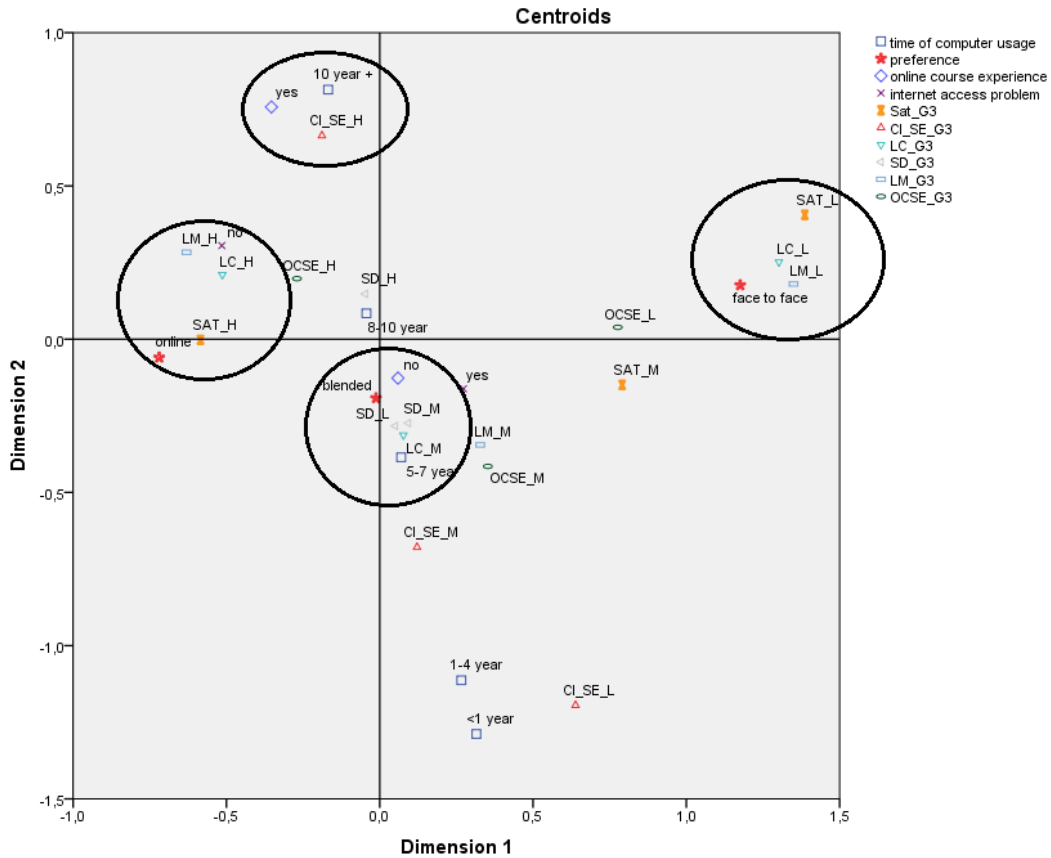
*Note.* a. Optimal Scaling Level: Ordinal; b. Optimal Scaling Level: Single Nominal; CI\_SE: Computer and Internet self-efficacy, SD: Self-directed learning, LC: Learner control, LM: Learner motivation, OC\_SE: Online communication self-efficacy

Association coefficients were analyzed to evaluate the validity of the specified associations. Cramer's V (Field, 2000) is a measure of association between two nominal variables. A review in Table 7 suggested that environment preferences were associated with the highest learner control, motivation to learn, and satisfaction, while the associations among other categories were lower. Accordingly, it can be said that these are the essential factors related to preference.

**Table 7**  
Association coefficients

	Pearson Chi- Square	<i>p</i>	Cramer's V	<i>p</i>
Environment Preference * CI_SE_G3	25.001	0.000	0.099	0.000
Environment Preference * LC_G3	204.016	0.000	0.281	0.000
Environment Preference * OCSE_G3	57.383	0.000	0.149	0.000
Environment Preference * SD_G3	10.841	0.000	0.065	0.028
Environment Preference * LM_G3	221.567	0.000	0.293	0.000
Environment Preference * Sat_G3	297.379	0.000	0.340	0.000

*Note.* CI\_SE: Computer and Internet self-efficacy, SD: Self-directed learning, LC: Learner control, LM: Learner motivation, OC\_SE: Online communication self-efficacy



**Fig. 1.** Centroids of all categories of variables for two sets

*Note.* Nonlinear Canonical Correlation Analysis (OVERALS) presented a graphic where associations in the data set can be seen. The associations seen were circled. CI\_SE: Computer and Internet self-efficacy, SD: Self-directed learning, LC: Learner control, LM: Learner motivation, OC\_SE: Online communication self-efficacy

## 5. Discussion

Online learning environments have essential advantages. A high number of students attend higher education and students' access to online learning environments may be easy (Vanides, 2018). In addition, technology improves the ability to track student participation and outcomes (Community College of Aurora, 2020). Hence, many universities provide online courses to give students online course experience. However, there are also obstacles to online learning, such as low levels of technology literacy, e-learning readiness, and communication skills of learners and teachers (Wojciechowski & Palmer, 2005). From this point of view, the constructs that have a relationship with preference were determined. Painsky, Feder, and Tishby (2020) suggested nonlinear canonical correlation analyses as many real-world situations exhibit nonlinear relationships. Consequently, the associations between these constructs were revealed with nonlinear canonical correlation analysis.

In order to evaluate the university's decision about students' online course experience, learner preferences after completing the courses were examined. According to the findings, 32.92% of the learners preferred face-to-face learning environments, 53.57% online, and 13.51% blended environments. In addition, it was determined that 85.64% of students had not taken online courses before. Although preferences were not determined before the participants began the online courses for comparison, it is believed that the students' preferences related to their experience during the course. In this respect, it can be stated that the university's choice to offer the course online had a positive effect on the students. However, different results on student preferences have been reported in the literature (Diebel & Gow, 2009; Hass & Joseph, 2018; Kemp & Grieve, 2014; Owston et al., 2013; Tichavsky et al., 2015; Warner et al., 1998; Weldy, 2018; Young & Norgard, 2006). In the current study, it was observed that learners with 10 or more years of computer usage were more likely to have previously experienced online lessons and had a high perception of computer and internet self-efficacy. However, these factors acted independent of preferences. Learners were asked whether they had taken a course previously via distance learning; however, no measurement was performed regarding the number of courses they took or their perceptions about these courses. This may be one reason why previous online course experience was independent of the case of having previously taken a course. At this point, it can be said that student characteristics and online course readiness have an impact on student preferences (Spencer, & Temple, 2021).

Examining the graphic presented by this method, we concluded that those who preferred face-to-face courses were those individuals with low levels of learner control, motivation for learning, and satisfaction, whereas individuals who preferred the online environment had high levels of satisfaction, learner control, and motivation for learning, and experienced no internet connection problems. As can be seen from the model, satisfaction presents itself as an important factor. It can be concluded that satisfied students prefer online learning. Previous research also supports this argument (Artino, 2010; Chiu et al., 2007b).

Learner control and motivation for learning were other prominent constructs. In studies conducted by Chung, Noor, and Mathew (2020) and Widyanti, Hasudungan, and Park (2020) to determine learner online learning readiness, the learner control construct was also found to be at the lowest level. Accordingly, Chung et al. (2020) suggested shortening learning sessions or holding short quizzes at the end of each lesson. Further examination of the designs of the courses given would contribute to the literature.

In a study conducted by Hasanah, Nurdin, and Herbert (2014) and Yılmaz, Sezer, and Yurdugül (2019), learner motivation levels were found to be lower than the other factors. Hartnett (2016, p. 115) reported that motivation to learn could be situation-dependent and influenced by online teaching practices, the design of learning activities and courses, assessment practices, and tasks' social aspects. In this context, activities can be created that will support these constructs, or additional courses can be created to increase student motivation.

It was also found that learners who preferred taking courses in a blended environment reported low or medium levels of self-directed learning, no previous online lesson experience, and a medium level of learner's control. Although the majority of studies compared face-to-face and online environments, those that included blended environment reported that the learners preferred the blended environment (Boghikian-Whitby & Mortagy, 2016; Lim et al., 2007; Pechenkina & Aeschliman, 2017). In a study by Boghikian-Whitby and Mortagy (2016), students with previous experience in a

blended learning environment expressed a preference for a blended environment. A study by Keskin and Yurdugül (2020) revealed that motivational variables had a greater effect on learning environment preferences in students with previous experience in blended and online environments. From this point of view, the low preference for a blended learning environment in our study may be due to a lack of knowledge or experience in blended learning environments. However, no data could be collected in this study to support this hypothesis. Further studies on this subject would serve to better answer this question.

According to the findings, the majority of the students (65.06%) had high self-directed learning perception levels. Yılmaz, Sezer, and Yurdugül (2019) found similar results. Therefore, it was expected that students who preferred the online learning environment had high level of self-directed learning. However, it was found that low, medium, or high levels of perception on self-directed learning was not related to the online or face-to-face environment preference. More detailed studies should be performed on this subject to provide further information.

## **6. Conclusion and implications**

In conclusion, learner control and motivation form a pattern with their preferences. Accordingly, examining these perceptions of university students towards online courses may help learners feel satisfied after the completion of their courses. Online course processes can be monitored by continuously measuring students' satisfaction.

Today, efforts have emerged to utilize technology in support of remote learning, distance education, and online learning during the COVID-19 pandemic (The World Bank, 2020). Due to COVID-19, universities around the world had to pivot to online courses. Although this mandatory change revealed the benefits of distance education, many teachers and students were caught unprepared. This study's findings show that students with a high level of learner control and motivation for learning may prefer online learning in the future. After this period, learner preferences can be examined in more detail.

## **7. Limitations and further research**

While graphical representations present the associations specified, we were unable to see the direct and indirect effects. In this respect, factors that are considered independent and have an impact in the literature may also have indirect effects. Thus, further experimental studies should be performed to determine the variables that directly or indirectly affect learner preference.

Students who took two similarly designed courses participated in the study. In addition, these students took the course from different teachers. These two factors may affect learners' preferences and as such can be considered a limitation of the study. In addition, learners were not informed of blended learning environments nor asked if they had any experience with these environments. Thus, further research re-examining learner preferences after providing them with information about other types of learning environments might be useful.

Recently, studies describing different online learning readiness constructs have been published (Joosten & Cusatis, 2020; Yu, 2018). In the current study, self-directed learning skills, computer and internet self-efficacy, learner's control, motivation, and online communication self-efficacy (Hung et al., 2010) were examined as subfactors of

learner online learning readiness. Newly defined constructs can be examined in further models.

### Author Statement

The author declares that there is no conflict of interest.

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