The relation between future time perspective, online learning self-efficacy and lifelong learning tendency: a mediation analysis

Özlem Karakış [a] *

[a], Bolu Abant İzzet Baysal University School of Foreign Languages, 14280, Bolu,Turkey

Abstract

This study aimed to determine whether lifelong learning tendency played a significant mediating role in the relationship between university students' future time perspective and online learning self-efficacy levels. It was structured in descriptive and relational survey models. 729 university students participated in the study. Online Learning Self-Efficacy Scale, Lifelong Learning Tendencies Scale, Future Time Perspective Scale and Personal Information Questionnaire were used as data collection tools. Results of the data demonstrated that university students' lifelong learning tendencies played a significant mediating role in the relationship between their online learning self-efficacy and future time perspectives. Furthermore, it was determined that the future time perspective had a moderate and positive effect on the online learning self-efficacy through lifelong learning tendency. Moreover, that the students' online learning self-efficacy score means were high and lifelong learning tendencies scores were low, and about three quarters of the students had short-term future time perspective were found. In the study, it was determined that the average of male students' lifelong learning tendency scores was higher than the average of female students, and there was no statistically significant difference between the averages of female and male students in terms of online learning self-efficacy and future time perspective total score averages. In the study, there was also no statistically significant difference between the averages of students with different education status in terms of online learning self-efficacy, future time perspective and lifelong learning tendencies.

Keywords: Lifelong learning tendency, future time perspective, online learning self-efficacy, university students, mediation analysis

* Corresponding author name. Phone.: +903742541000-2812
  E-mail address: karakis_o@ibu.edu.tr

1. Introduction

Thinking about the future and acting accordingly is a fundamental feature of the human mind. Individuals have future goals and strive to achieve them. Future expectations and goals are very important as they are powerful motivators of current decisions. The current decisions, expectations, and beliefs of individuals regarding their future goals is defined as future time perspective and is linked to the development of an individual (Husman & Lens, 1999) as he can foresee his own development by predicting the future and can direct his current behaviours by targeting a specific future. Undoubtedly, education is one of the concepts that individuals consider while setting goals about their future. With the shortening of the validity period of the knowledge and skills acquired today, education system must be restructured to provide individuals with lifelong learning knowledge and skills. Lifelong learning, that people carry out purposefully in their lives to provide individual development and increase their life quality, is also supported by online learning that eliminates time and space limits. In online learning environments, which are gaining importance as teaching and learning are not limited to traditional classrooms with the widespread use of mobile technologies and the internet, self-efficacy is an important variable that should be considered in meeting expectations. Moreover, online learning self-efficacy, identified as individuals' judgements about own talent to use computer and communication technologies by Lee and Mendlinger (2011), affects even quitting the online course (Lee & Choi, 2011).

1.1. Future time perspective (FTP)

FTP, a concept that is both motivational and cognitive (Nuttin, 1980), is representing the future mentally; the individual focuses on the amount he cares about the future, identifies expectations and goals, regulates behaviour, motivates, and watches the performance in different missions, and assesses whether performance meets goals (Husman & Shell, 2008). Future time perspective is an individual's current expectations, interests, fear, attitudes, perceptions and hopes for his future (Husman & Shell, 2008; Nurmi, 1991; Simons et al., 2004; Zimbardo & Boyd, 1999). Gjesme (1983) likened future time perspective's function to projector light helping illuminate future events. Regarding the aspects of future time perspective, 'value' is identified as the importance attributed by people to the future goals and 'perceived instrumentality' is defined as how individuals perceive the value of current behaviour, duties, or responsibilities in affecting future goals (Husman & Shell, 2008). People having a long-term future time perspective comprehend their current behaviours more instrumentally because they know that they help them reach future goals (Eccles & Wigfield, 2002) and they perform current behaviours in a more planned way (Miller et al., 2000). People with short-term future time perspective assign near future goals (Eccles & Wigfield, 2002). People having long-term future time perspective are also motivated more as they can predict future

consequences of present behaviours easier (Eccles & Wigfield, 2002; English & Carstensen, 2016; Husman & Shell, 2008) and have high self-efficacy (Shafikhani et al., 2018). As a result, individuals with long-term future time perspective can plan future actions and act against possible consequences of future events better. Future time perspective, a frequently studied subject in the field of education as its process has future-oriented nature, positively affects academic achievement (Jackson, 2006; Kauffman & Husman, 2004; Nurmi, 1991). It is a good predictor in academic and professional careers as well (Eren & Tezel, 2010; Husman & Lens, 1999; Peetsma, 2000).

1.2. Online learning self-efficacy (OLS)

Online learning, the most dynamic and enriching forms of existing learning opportunities, offers well-designed, interactive, and facilitating learning environments with various digital technologies and resources (Khan, 2005), with a perspective that puts the student in the centre of the learning process (Aoki, 2010). Learners use information and communication technologies, communicate, and cooperate with their friends and teachers as their role has changed from passive recipient to active learner and they can progress at their own pace; therefore, they are affected by self-efficacy perceptions in such situations. Self-efficacy expresses how a person feels himself about his capacity to organise and apply the action paths needed to achieve specified types of performance (Bandura, 1977; Schunk, 1985). According to Pajares (2002:116), self-efficacy is an important factor that contributes to students' success in education as it affects choices and the course of action followed. While Hodges (2008) classified online learning self-efficacy towards technology, learning and social interaction; Shen et al. (2013) classified it as self-efficacy in completing a course being held online and interacting with friends at school and teachers for social and academic aims. The dynamic form of online learning affects the perceived self-efficacy as self-efficacy in academic environments and computer utilization (Jan, 2015), computer skills (Taipjutorus, 2014) and digital literacy (Prior et al., 2016). Sources of self-efficacy in online learning include online learning knowledge and experience, reward and feedback, communication and interactions in online way, social impact, student motivation and attitude (Peechapol et al., 2018). Self-efficacy in online learning is impressed by interaction in those learning environments (Jaffe, 1997), indirect experience and (Fletcher, 2005; Taipjutorus et al., 2012) anxiety in using online learning technology, feedback given by instructors and previous achievements (Bates & Khasawheh, 2007).

1.3. Lifelong learning (LLL)

Existing knowledge and skills are rapidly becoming outdated over time due to the increasing change with technological devices such as the Internet (Knapper & Cropley, 2000). Therefore, the argument that people can use what they learn in certain

educational periods throughout their lives becomes invalid (Vincent, 2006). The necessity of lifelong learning in changing economic reality, occupational mobility and self-learning contexts emphasizes the spread of learning opportunities throughout life. Stehlik (2003:371) considers lifelong learning as our learning approaches that teach us how to learn throughout life, and that we form against new situations outside of school ages. It is stated by European Commission (2007:7) that lifelong learning covers all purposeful learning activities, whether formal or non-formal, being carried out to develop information, accomplishments, and skills within the framework of social, personal, and business life. Lifelong learning is defined as the learning that people voluntarily carry out all their lives to provide individual improvement and increase life standard. Lifelong learning has a holistic structure that encompasses all learning stages in life and includes separate but connected learning stages having vertical relationships between themselves (Lynch, 1977); it cannot be considered as formal education alternative but as the fulfilling the data that is incomplete or insufficient in formal education (Newby et al., 2006) as formal education is part of lifelong learning. In short, lifelong learning is type of learning that people carry out purposefully all their lives to ensure their personal development and to increase life standards. Continuous learning and self-improvement are the main features of the human model of the 21st-century information society (Fındıkçı, 2004). The concept of learning society, being used to describe the information society, reflects this fact. Lifelong learning enables individuals to self-learn the knowledge and skills they want wherever they wish with the developments in technology (Hart, 2006) and is a form of pedagogy that is tried to be achieved with all methods such as online learning, continuous education, and open education (World Bank; Aktan, 2007).

1.4. The significant of research

Imagining the future is especially important for adolescents and youth as important decisions are made about different aspects of life during this period (Husman & Shell, 2008). These decisions affect young people's current behaviours and plans in the near and far future, and their consequences affect almost their entire adult life. According to Walker and Tracey (2012), people who see the significance of the relationship between current stages and goals about the future, in other words, people having future time perspective have tendency of having more self-confidence. While individuals are setting their future goals, they are also on the way to becoming lifelong learners. The lifelong learner also contributes to the formation of the 21st century learner society by applying his knowledge and skills to different fields. In the digital age we live in, the lifelong learner should have the self-efficacy to use online technologies effectively and should be production oriented. Removing the limits of time and space, online learning provides the opportunity to make education-learning activities continuous; according to Sözen (2003), online learning is important in lifelong learning thanks to its facilities and flexibility such as mass education, equal opportunity, low cost. Therefore, it is thought that

students' future time perspectives are important in our understanding and interpretation of their tendencies in lifelong learning. In this perspective, it is thought as significant to determine the relationships between future time perspectives, self-efficacy in online learning and tendencies in lifelong learning of university students being considered at the beginning of their vocational and academic education.

1.5. Aim of the research

This research aims to analyze the relation between university students' future time perspective, self-efficacy in online learning and tendencies in lifelong learning. With this purpose, these questions were searched:

1-What are university students' future time perspective, online learning self-efficacy and lifelong learning tendencies levels?

2-Is there a difference between university students' future time perspective, online learning self-efficacy and lifelong learning tendencies levels by gender and education status (undergraduate / graduate)?

3-Is there a significant relation among university students' future time perspective, online learning self-efficacy and lifelong learning tendencies levels?

4- Do university students' lifelong learning tendencies play a significant mediative role between their future time perspective and online learning self-efficacy?

2. Method

2.1. Research model

The research was configured in a survey model as it aimed to clarify university students' online learning self-efficacy, lifelong learning tendencies and future time perspective levels. According to Gay and Airasian (2000), the aim of survey models is to reveal a current situation. The research was also structured in a relational survey model as its aim was to reveal the relationships between university students' tendencies in lifelong learning, future time perspective, and online learning self-efficacy levels. According to Büyüköztürk et al. (2014), relational survey models aim to identify whether two and / or more variables change together. The dependent variables are university students' online learning self-efficacy, lifelong learning tendencies and future time perspective levels; its independent variables are gender and the education status.

2.2. Participants

The participants are 729 students, being determined by random sampling method, studying at the first grade of a university (approximately 31000 students) located in

Turkey in 2020-2021 academic year. According to Özdemir (2008), in random sampling, participants are chosen incidentally, but with a known selection probability. The frequency and percentage values for independent variables are given in Table 1.

Table 1. Percentage and Frequency Values Regarding Variables

Variable	Level	N	%
Gender	Female	478	65.6
	Male	251	34.4
	Total	729	100
Education status	Undergraduate	486	66.7
	Graduate	243	33.3
	Total	729	100

As seen in Table 1, it is understood that the number of male students is approximately half as less as female students, and undergraduate students are much more than graduate students and there is no missing data.

2.3. Data collection tools and process

Personal Information Questionnaire prepared by the researcher, Online Learning Self-Efficacy Scale (OLSS), Lifelong Learning Tendencies Scale (LLTS) and Future Time Perspective Scale (FTPS) were used to gather data. The data were gathered with the permission obtained at the meeting dated 24.12.2020 and 2020/12 from B.A.İ.B.U. Human Research Ethics Committee in Social Sciences. Confirmatory factor analysis (CFA) was used for the validity of the results and Cronbach Alpha and Stratified Alpha techniques were used for reliability. CFA results for all scales are given in Table 2.

Table 2. Goodness of Fit Indices for Scales' Factor Structure

Goodness Harmony Index	Acceptable Limit Values	OLS	FTPS	LLTS
X^2/sd	<5 Medium-level <3 Good fit	834.67/178= 4.69	234.49/74 3.17	987.884/308 3.21
CFI	>0.90	0.92	0.97	0.94
NNFI	>0.90	0.90	0.96	0.94
RMSEA	<0.08	0.071	0.055	0.055

(Çokluk, Şekercioğlu & Büyüköztürk, 2010:271-272)

2.3.1. Future Time Perspective Scale (FTPS)

FTPS, being developed by Husman and Shell (2008), was adapted to Turkish by Eren (2007). The factors of connectedness, value, extension, and speed in the original scale have been verified as connectedness and value in Turkish adaptation. In the scale, with a 5-Likert type answer format and having 7 items for each factor, all items making up the

connectedness factor are negative, and all items making up the value factor are positive. In the present study, points between 14-42 for the whole scale were evaluated as short-term future time perspective, points between 43-70 as long-term future time perspective. Second order CFA was used to prove that the scores of the scale can be summed up. Second order CFA was also used to prove construct validity of subscale scores of FTPS. As the estimation technique, the likelihood approach was used most, and the results obtained were given in Table 2. From the data in Table 2, it is understood that second-order CFA evaluation results regarding FTPS are at acceptable and excellent levels. It was determined that the non-standardized path coefficients obtained for each item by CFA analysis were positive and statistically significant (p <0.01); the standardized path coefficients of the items related to the value factor were between 0.50 and 0.76 and the standardized path coefficients of the items related to the relevance factor were between 0.48 and 0.90. A statistically significant correlation at the level of 0.31 was calculated between the FTPS factors. When the correlations of factor total scores with FTPS total scores were examined, it was found that it was 0.80 (p <0.01) for the value factor and 0.82 (p <0.01) for the connectedness factor. According to these results, it can be said that the FTPS factors have statistically significant relationships with each other and with the total scale. On the other hand, Cronbach's alpha value of internal consistency coefficient of value and relevance factors were 0.85 and 0.88, respectively; 0.90 for the whole FTPS. Based on these results, it was decided that FTPS was valid and reliable, and it was appropriate to use scale total scores in the analysis.

2.3.2. Online Learning Self-Efficacy Scale (OLLS)

OLLS, being developed by Zimmerman and Kulikowich (2016) was adapted to Turkish by Yavuzalp and Bahçıvan (2020). Since the factor load of the 2nd item in the original scale having 22 items is below 0.40, it is not included in the Turkish version. The three-dimensional original scale yielded a one-dimensional result in Turkish adaptation. Having a 5-Likert type response format, the scale was scored on the total score in the current study and points between 21-49 were evaluated as low; points between 50-77 were evaluated as medium and points between 78-105 were evaluated as high. Within the scope of the current research, the internal consistency coefficient Cronbach Alpha value for the total scores of the scale was calculated as 0.93. On the other hand, it is seen that the CFA model evaluation results given in Table 2, made to verify the one-dimensionality of the scale, were acceptable. With the CFA analysis, it was determined that the non-standardized path coefficients obtained for each item as 0.53 and 0.71 were positive and statistically significant (p <0.01). With these results, it was decided that OLLS was valid and reliable.

2.3.3. Lifelong Learning Tendencies Scale (LLTS)

LLTS, developed by Coşkun Diker (2009), with a total of 27 items, has motivation, persistence, lack of regulation of learning and lack of curiosity dimensions. All items in

the factors of persistence and motivation are scored positively; all items in the lack of curiosity and lack of regulation of learning are scored negatively. It has a 6-point Likert type response form; in the current study, evaluation was made on the total score, and points between 27-71 were evaluated as low; points between 72-117 were evaluated as medium and points between 118-162 were evaluated as high. Second order CFA was used to prove that the scores of the scale can be summed up. Second order CFA was also used to prove the structure validity of the test scores of LLTS. As the estimation technique, the likelihood approach was used most, and the results obtained were given in Table 2. In Table 2, it is understood that some of the second-order CFA evaluation results are acceptable, and some are excellent. It was determined that the non-standardized path coefficients obtained for each item by CFA were positive and statistically significant (p <0.01); standardized path coefficients of the items related to the motivation subscale have values between 0.75 and 0.88; the standardized path coefficients of the items related to the persistence subscale were between 0.70 and 0.84; the standardized path coefficients of the items related to the lack of regulation of learning subscale were between 0.58 and 0.84; the standardized path coefficients of the items related to the lack of curiosity subscale were between 0.52 and 0.82. It can be said that the correlations between the LLTS factors vary between 0.39 and 0.79, all correlations are statistically significant (p <0.01), and there are high and moderate correlations between factors. When the correlations of the factor total scores with the LLTS total scores were examined, it was found that 0.79 (p <0.01) for the motivation factor; 0.74 (p <0.01) for the persistence factor; 0.76 (p <0.01) for the lack of regulation of learning factor and 0.84 (p <0.01) for the lack of curiosity factor. According to these results, it can be pointed out that the subscales of LLTS have statistically significant relationships with each other and with the total test scores. Moreover, the internal consistency coefficients Cronbach's alpha value for the factors of motivation, persistence, lack of regulation of learning and lack of curiosity were calculated as 0,92; 0,88; 0,87 and 0,88, respectively. The stratified alpha reliability was found as 0.95 for the entire LLTS. As a result, it was decided that the measurement results obtained from LLTS were valid and reliable, and it was appropriate to use scale total scores in the analysis.

2.4. Data Analysis

According to frequency analyses made for the variables to check whether there were any loss or incorrect data entry, it was determined that there were no missing and incorrectly entered data. At the same time, frequency analyses were used to define the dispersion of the sample to demographic characteristics.

Within the scope of validity and reliability study, CFA and Cronbach's alpha and stratified alpha calculations were made to obtain validity proof whether the results obtained from the scales support the theoretical structure. Cronbach, Schonemann, and

Brennan (1965) suggested the use of the Cronbach Alpha reliability coefficient to determine the internal consistency of scales with a dominant single dimension, and the Stratified Cronbach Alpha coefficient for the reliability of the combined scores obtained from scales with sub-dimensions. The stratified Cronbach Alpha coefficient was calculated using the "sirt" package in the R program (Robitzsch, 2017). Maximum likelihood estimation and Mplus program were used as the estimation method in CFA. To use the maximum likelihood method in CFA, the variables must provide a normal distribution. To determine whether the subscales total scores and test total scores of the scales were normally distributed, the skewness and kurtosis coefficients were used because of the large sample (The smallest kurtosis coefficient value obtained for three scales was found to be -0.113 and the largest kurtosis coefficient value was 0.313; the smallest skewness coefficient value obtained for three scales was found to be -0.638 and the largest coefficient of skewness was 0.510). Since the kurtosis and skewness coefficients of the three scales used in the study remained in the range of ± 1.5 (George & Mallery, 2010; Pituch & Stevens, 2016:228; Tabachnick & Fidell, 2013;), it was accepted that the scores did not deviate significantly from normal distribution and in the CFA the mostly likelihood technique was used in model estimates.

Descriptive statistics for total scores and subscale total scores for the first research question were calculated. In addition, for the first research question, frequency analysis was performed by converting the total scores and subscale scores into categorical variables. While the total scores for OLSS and LLTS were converted into categorical variables, the weak, medium, and high score groups were obtained by dividing the total score range into three equal intervals. While the total scores for FTPS were converted into categorical variables, the long-term and short-term future time perspective score groups were obtained by dividing the total score range into two equal intervals. Since the number of questions was not equal in obtaining the groups, the re-encoding process was carried out separately for each scale.

For the second research question of the study, independent groups t-test analyses were used to find out if there was a difference between the online learning self-efficacy, future time perspective and lifelong learning tendency levels of university students by gender and the education status or not.

The relationships between the scale total scores were examined for the third research question of the study. Relationships between scale total scores were calculated as Pearson correlation coefficient since total scores indicate normal distribution and are continuous variables. In interpreting the power of Pearson correlation coefficients, the boundaries that Kirk (2008:138) and Büyüköztürk (2011: 32) stated as being often used were adopted. These limits are defined as very high if the absolute value of the correlation coefficient is $r \geq 0.90$; high if the absolute value of the correlation coefficient is

r=0.70-0.89; medium if the absolute value of the correlation coefficient is r=0.69-0.30 and weak if the absolute value of the correlation coefficient is r ≤ 0.29.

For the fourth research question of the study, the regression analysis based on the mediation role of the variable of lifelong learning tendency level was used. Future time perspective level was considered as dependent variable, lifelong learning tendency level was considered as mediator variable and online learning self-efficacy level was considered as independent variable. SPSS macro-PROCESS Version 3.5 written by Hayes (2020) was used in the analyses.

3. Results

For the first question of the study, the descriptive analyses of variables and the analyses results of the distribution of individuals to category groups are presented in Table 3.

Table 3. Descriptive statistics on OLS and LLT levels

Variables	Mean	sd	Skewness	Kurtosis	Low	Medium	High
OLS	77.92	15.99	-0.64	0.31	45 (%6.2)	280 (%38.4)	404(%55.4)
LLT	68.47	23.5	0.51	0.13	425 (%58.3)	286 (%39.2)	18 (% 2)

As can be seen in Table 3, it is understood that students' online learning self-efficacy scores mean is high and lifelong learning tendency scores is low. Although the skewness and kurtosis coefficients of the scores indicate that deviation from the normal is not significant, the frequency distributions of the scores in the low, medium, and high score categories support the interpretation of the means.

Table 4. Descriptive statistics on FTP levels

Variables		Frequency	Percentge
FTP	Short-term	533	73.1
	Long-term	196	26.9
	Total	729	100

As seen in Table 4, it was found out that most of the students within the scope of the study had short-term (n = 533), and approximately one fourth (n = 196) had long-term future time perspective.

For the second question of the study, independent groups t-test analyses were utilized, and the results are presented in Table 5 and Table 6.

Table 5. Independent groups T-test results on the difference between university students' mean scores in FTP, OLS and LLT

Scales	Group	N	Mean	sd	T	Hedges G
OLS	Female	478	77.30	15.63	1.44	0.11

		251	79.10	16.61		
FTPS	Female	478	36.01	11.54	-0.80	0.06
	Male	251	36.73	11.40		
LLTS	Female	478	64.93	23.37	-5.73**	0.45
	Male	251	75.21	22.28		

* P <0,05   **P <0,01

As seen in Table 5, the difference between the means of the total lifelong learning tendency scores by gender was found as statistically significant. According to this, that the mean of female students' lifelong learning tendency level scores is lower than that of males and there is a moderate effect since the Hedge g effect size coefficient calculated to determine whether this result is because of the sample size or not is practically significant can be stated. Accordingly, 45% of the difference between the two means can be explained by gender variable. Conversely, there was not a statistically significant difference between the means of male and female students in terms of online learning self-efficacy and future time perspective levels total score means ($P > 0.05$). Based on these results, that male and female students' mean scores are equal in terms of online learning self-efficacy and future time perspective scale total score means can be stated as well.

Table 6. Independent groups T-test results regarding the difference between the mean scores of FTP, OLS and LLT levels according to the education status

Scales	Group	N	Mean	sd	T
OLS	Undergraduate	486	77.26	16.36	-1.58
	Graduate	243	79.24	15.16	
FTP	Undergraduate	486	36.44	11.44	0.61
	Graduate	243	35.89	11.60	
LLT	Undergraduate	486	67.37	23.13	-1.79
	Graduate	243	70.67	24.12	

* P <0.05   **P <0.01

As seen in Table 6, it is understood that there was not a statistically significant difference between the means of students having different education status in terms of online learning self-efficacy, future time perspective and lifelong learning tendency levels (p> 0.05). Accordingly, it can be said that the means of students having different education status are equal for online learning self-efficacy, future time perspective and lifelong learning tendency scales.

For the third question of the study, Pearson correlations were calculated to see the relationships between variables, and the results are given in Table 7.

Table 7. Relationships between variables of FTP, OLS and LLT

Variables	OLS	FTP	LLT
OLS	1		
FTP	-0.08*	1	
LLT	-0.24**	0.36**	1

* p <0.05   ** p < 0.01

As seen in Table 7, it is understood that there is a negative, statistically significant but weak correlation between the total online learning self-efficacy and the future time perspective and lifelong learning tendency total scores. The reason why these weak relationships turn out to be meaningful is that the study sample is very high. For this reason, that there is not a practically significant relationship between online learning self-efficacy total scores and future time perspective and lifelong learning tendency total scores can be denoted. On the other hand, it is seen that there is a positive statistically significant and moderate correlation between the total scores of future time perspective and lifelong learning tendency. According to these data, it can be said that the total scores of future time perspective and lifelong learning tendency show a tendency to change together, albeit at a medium-level.

For the fourth question of the study, the partial mediation model given in Figure 1 was analyzed. As the correlations between the variables discussed in the fourth research question were not high enough, the partial mediation model was preferred instead of the full mediation model.
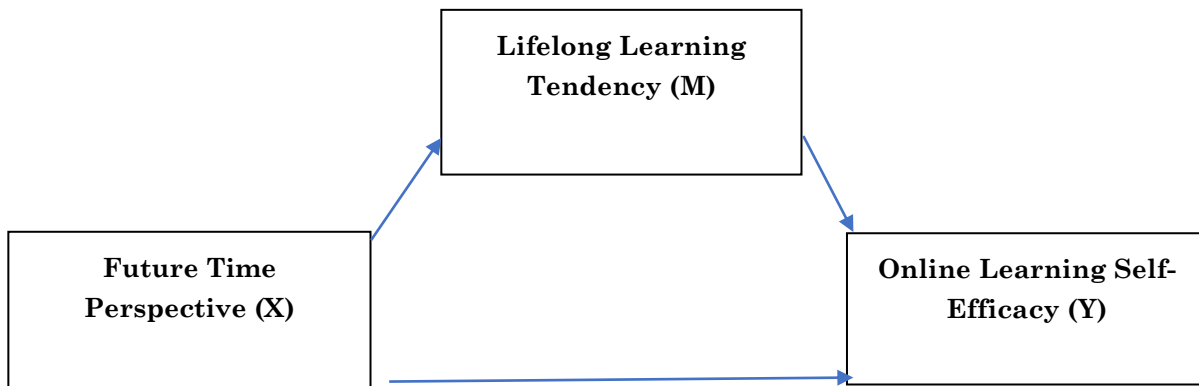
Figure 1. The mediating variable model of Lifelong Learning Tendency in the
    relationship between Future Time Perspective and Online Learning Self-Efficacy

Four regression models were applied to test the partial mediation model given in
Figure 1. First, regression models were established in which lifelong learning tendency is
independent and online learning self-efficacy is the dependent variable; then, lifelong
learning tendency and future time perspective are independent and online learning self-
efficacy is dependent variables, and finally, future time perspective is considered as
independent variable and online learning self-efficacy as the dependent variables.
Analyses results for regression models are given in Table 8.

Table 8. Regression Analysis Results Obtained for the Mediation Model in Figure 1

Model	Independent-Dependent	b coefficient	Standard error	t	p
1	X >>> M	0.738	0.071	15.508	<0.001
2	X >>> Y	-0.113	0.051	-2.194	=0.029
3	M >>>Y	-0.165	0.024	-6.744	<0.001
4	X >>> Y	-0.01	0.054	0.192	=0.847
	M >>>Y	-0.167	0.026	-6.355	<0.001

As seen in Table 8, it is figured out that the regression coefficient was determined to be
statistically significant (p <0.001) in the 1st model in which the future time perspective
variable was considered as the independent variable alone. Regression coefficient was
found as statistically insignificant (p <0.001) in the 2nd model in which the future time
perspective variable was considered as an independent variable; the regression
coefficient was found as statistically significant (p <0.05) in the 3rd model in which the
lifelong learning tendency variable was considered as an independent variable alone; in
model 4, where lifelong learning tendency and future time perspective variables are
handled together as independent variables, the regression coefficient for the lifelong
learning tendency variable is found to be statistically significant, while the regression
coefficient for the future time perspective variable is determined to be statistically
insignificant. This indicates that the lifelong learning tendency variable has a mediating
role for the future time perspective variable. Therefore, it can be said that the future time
perspective variable affects the online learning self-efficacy variable through lifelong
learning tendency variable. According to these results, university students' lifelong
learning tendencies play a significant mediating role in the relationship between online
learning self-efficacy and future time perspective. This decision is confirmed by the Sobel
test regarding the mediating role of the future time perspective variable. The confidence
interval for the indirect effect value calculated according to the Sobel test result does not
include the zero value. As the total effects in the model of the mediating role of the
lifelong learning tendency in the relationship between future time perspective and online

learning self-efficacy are -0.113; direct effects were determined as 0.10 and indirect effects as -0.123, since the confidence interval calculated for indirect effects does not include zero, it is determined that there is a mediation effect. The standardized indirect effect size calculated for the mediating role was calculated as -0.089 (about 9 %). This result shows that the mediating role has a medium effect, and the effect has practical significance.

4. Discussion and Conclusion

1. In the current research, it was understood that average of self-efficacy in online learning scores of students was high and there was statistically insignificant difference by gender and education status variable. These findings mean that these students have high judgments about their ability to use computer and communication technologies. Moreover, male, and female students and undergraduate and graduate students' beliefs and judgments about themselves were equal in online learning environments that put them at the center of learning process and offer interactive and facilitating learning environments with digital technology. This finding can also be said to be a proof that female and male students and undergraduate and graduate students have equal levels of academic and computer self-efficacy, academic computer skills and digital literacy. The students in the current study were born after 2000 and are named as Generation Z (TIMDER, 2015), being intertwined with technology, can quickly adapt to information, and time changes and develop technical usages according to themselves (Pembenar, 2018). In other words, these Generation Z students live with technology (Uzun, 2016), have technology-based lifestyles, use social media productively and can use technology in solving their problems (Kapil & Roy, 2014). Since this generation was born and raised with the Internet, it is a technology-savvy generation that can access information quickly (Twenge et al., 2010). That's why, it is inevitable that the online learning self-efficacy levels of the study sample are high and at the same level by gender and education status variable.

2. In the current research, it was understood that the mean of students' lifelong learning tendency scores was low; this may be because they are still first-year university students and at the beginning of their professional and academic lives. The fact that these students are not aware of lifelong learning skills and do not yet need these skills may be other reasons for their lifelong learning tendency's low level. Some studies in the literature support this finding as well (Coşkun Diker, 2009; Coşkun Diker & Demirel, 2012; Güzel, 2017; Tunca et al., 2015). In the study, it was also stated that the mean of lifelong learning tendency scores of male students is higher than that of females. This finding indicates that the male students have higher scores to provide their individual development and increase their life quality and to improve their knowledge, skills, and abilities within the framework of personal, social, and business life. Some study findings

in the relevant literature also support this finding of the current study (Beytekin & Kadı, 2014; Tunca et al., 2015; Ünal & Akay, 2017). A statistically insignificant difference between the averages of students having different education status in terms of lifelong learning tendency was also found. Based on this data, although they have different education status, students' lifelong learning tendencies, deliberate learning that they will do to provide their personal development and increase their life quality, are equal. The finding of the present study does not agree with the findings of the study, in which it was explored that undergraduate students' lifelong learning tendencies are higher than graduate students in the study conducted by Kozikoğlu and Altunova (2018).

3. In the current research, it was seen that students have short-term future time perspective and there was not a statistically significant difference between the averages of male and female students and undergraduate and graduate students. The finding that the students have short-term future time perspective is an indication that these students have determined their goals in near future, and they mentally imagine, value, and focus near future, arrange their behaviors, goals, and expectations accordingly, and give more importance to near-range goals. That there is no statistically significant difference between the averages of male and female students and students with different education status may be since these students are at the very beginning of their vocational and academic education and both male and female students give equal importance to the future and future goals.

4. According to the data, lifelong learning tendency was determined to have a significant mediating role in the relationship between future time perspective and online learning self-efficacy of university students. It was determined that future time perspective variable had a moderate and positive effect on online learning self-efficacy variable through lifelong learning tendency variable. Accordingly, that the students' future time perspective and lifelong learning tendencies tend to change together, albeit at a moderate level can be said. That the students' future time perspective, being the mental representation of the future (Husman & Shell, 2008) and examining the extent to which one's current behaviour is linked to future goals (Husman & Lens, 1999; McInerney, 2004) influence their lifelong learning tendency, which is the learning they do purposefully to provide their personal development and increase their life standards. The future time perspective, which has been likened to a projector light that helps to illuminate future events by Gjesme (1983), has also shed light on lifelong learning tendency, which are the learning approaches that students learn how to learn in life, outside of school age, against new situations. While these students set goals and expectations for the future and evaluate whether their performance fulfils these goals and expectations, they also tend to carry out purposeful learning throughout their lives to ensure their personal development and increase their life quality. In addition, based on this finding, it can be said that the future time perspective, examining the extent to which a person's current behaviour (Husman & Lens, 1999; McInerney, 2004) is linked to

future goals, helps students predict lifelong learning tendencies better, including their future learning. It was also determined that the lifelong learning tendency of the students affect their online learning self-efficacy, which expresses their judgments about using computer and communication technologies. Lifelong learning, which emerges in the context of changing economic reality, occupational mobility, and self-learning, is implemented to develop knowledge and skills within the framework of personal, social, and business life. The fact that the information people learn at the beginning of their lives will not be sufficient and valid for the rest of their lives requires acquiring various skills. Lifelong learning enables individuals to self-learn wherever they want through the developments in technology (Hart, 2006). Online learning, the newest and most dynamic form of learning today, is one of the pedagogy forms that lifelong learning includes. The obstacles to lifelong learning are overcome by online learning, providing the opportunity to make education-learning activities lifelong by removing time and space boundaries. Computer and communication technologies such as e-mail, Skype, and chat, sources of motivation in lifelong learning, are also frequently used in online learning. The fact that a significant negative relationship was found between the future time perspective and online learning self-efficacy of the students is because these students have short-term future time perspective and high online learning self-efficacy as they already benefit from all the knowledge and skills of online learning that are current and popular today.

4.1. Suggestions

The lifelong learning tendency of the students are detected to be low. By determining the knowledge and skills that students may need in the future, it can be ensured that they are raised as independent and strong lifelong learners. The effect of schools on the acquisition of lifelong learning skills should be given more importance and students should be ensured to develop a positive attitude towards lifelong learning. Lifelong learning skills should be considered in determining learning outcomes in educational programs. These skills can be included both in training programs and activities. It was determined that the students have short-term future time perspective. During education, it should be ensured that students develop their future time perspective with concrete examples in a positive way.

Teachers' behaviors, instructional practices, and socioeconomic level variables can also be considered to obtain more comprehensive findings in terms of pedagogy in future studies. With future longitudinal and qualitative studies, more comprehensive findings about students' online learning self-efficacy, lifelong learning tendency and future time perspective can be obtained. It is also thought that future studies with students from different classes and education levels will contribute to the field.

5. References

Aktan, C. (2007). Yüksek öğretimde değişim: Global trendler ve yeni paradigmalar [Change in higher education: Global trends and new paradigms]. Yaşar Üniversitesi Yayını [Yaşar University Publication].

Aoki, K. (2010). The use of ICT and e-learning in higher education in Japan. World Academy of Science, Engineering and Technology, 66, 868-872.

Avrupa Komisyonu (2000). A memorandum on lifelong learning. Bruxelles.

www.bologna-berlin2003.de/pdf/MemorandumEng.pdf (Retrieved on: 02.01.2021)

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. Psychological Review, 84(2), 191-215.

Bates, R., & Khasawheh, S. (2007). Self-efficacy and college students' perceptions and use of online learning systems. Computers in Human Behavior, 23, 175-191.

Beytekin, O. F., & Kadı, A. (2014). Quality of faculty life and lifelong learning tendencies of university students. Higher Education Studies, 4(5), 28-36.

Büyüköztürk, Ş. (2011). Sosyal bilimler için veri analizi el kitabı - istatistik, araştırma deseni, SPSS uygulamaları ve yorum [Data analysis handbook for social sciences - statistics, research design, SPSS applications and interpretation] (15. Baskı). Pegem Akademi [Pegem Academy].

Büyüköztürk, Ş., Kılıç Çakmak, E., Akgün, Ö.E., Karadeniz, Ş., & Demirel, F. (2014). Bilimsel araştırma yöntemleri [Scientific research methods]. Pegem Akademi [Pegem Academy].

Coşkun Diker, Yelkin (2009). Üniversite öğrencilerinin yaşamboyu öğrenme eğilimlerinin bazı değişkenler açısından incelenmesi [Examining the lifelong learning tendencies of university students in terms of some variables]. Yayınlanmamış doktora tezi [Unpublished doctoral dissertation]. Hacettepe Üniversitesi [Hacettepe University]

Coşkun, Y. D., & Demirel, M. (2012). Lifelong learning tendencies of university students. Hacettepe University Journal of Education, 42, 108-120.

Cronbach, L. J., Schonemann, P., & McKie, D. (1965). Alpha coefficients for stratified-parallel tests. Educational and Psychological Measurement, 25, 291-312.

Çokluk, Ö., Şekercioğlu, G., & Büyüköztürk, Ş. (2010). Çok değişkenli istatistik SPSS ve LISREL uygulamaları [Multivariate statistics SPSS and LISREL applications]. (Birinci baskı) [1st ed.]. Pegem Akademi [Pegem Academy].

Dunlap, J. C. (2005). Changes in students' use of lifelong learning skill during a problem-based learning Project. Performance Improvement Quarterly, 18(1), 5-33.

Eccles, J. S., & Wigfield, A. (2002). Motivational beliefs, values, and goals. Annual Review of Psychology, 53, 109-132.

English, T., & Carstensen, L. L. (2016). Socioemotional selectivity theory. Springer Published.

Eren, A. (2007). Gelecek zaman perspektifi ölçeği [The future time perspective scale]. Eğitim Bilimleri ve Uygulama Dergisi [Educational Sciences and Practice Journal], 6(12), 79-96.

Eren, A., & Tezel, K. F. (2010). Factors influencing teaching choice, professional plans about teaching, and future time perspective: A mediational analysis. Teaching and Teacher Education, 26, 1416-1428. DOI:10.1016/j.tate.2010.05.001

Fındıkçı, İ. (2004). Yaşadıkça eğitim [Lifelong education]. Hayat Yayıncılık [Hayat Publishing].

Fletcher, K. M. (2005). Self-efficacy as an evaluation measure for programs in support of online learning literacies for undergraduates. The Internet and Higher Education, 8(4), 307-322. DOI:10.1016/j.iheduc.2005.09.004

Gay, L. R., & Airasian, P. (2000) Educational research: Competencies for analysis and application (6th edition), Prentice Hall.

George, D., & Mallery, M. (2010). SPSS for windows step by step: A simple guide and reference, 17.0 update (10th ed.), Pearson.

Gjesme, T. (1983). On the concept of future time orientation: Considerations of some functions and measurements' implications. International Journal of Psychology, 18, 443-461.

Güzel, H. (2017). Lifelong learning tendency investigations of prospective teachers. The Journal of International Education Science, 10, 312-325.

Hart, R, (2006). Using e-learning to help students develop lifelong learning skills. (Unpublished doctoral thesis). Royal Roads University. Victoria, BC. https://www.learntechlib.org/p/120407/ (Retrieved on:15.04.2021)

Hayes, A. F. (2020). The PROCESS macro for SAS, SPSS and R.

https://www.processmacro.org/index.html (Retrieved on:22.04.2020)

Hodges, C. B. (2008). Self-efficacy in the context of online learning environments: A review of the literature and directions for research. Performance Improvement Quarterly, 20(3-4), 7-25.

Husman, J., & Lens. W. (1999). The role of the future in student motivation. Educational Psychologist, 34, 113-125.

Husman, J., & Shell, D. F. (2008). Beliefs and perceptions about the future: A measurement of future time perspective. Learning and Individual Differences, 18(2), 166-175.

Jackson, W. H. (2006). Time perspective and motivation. Educational Psychology, College of Education, University of New Mexico.

Jaffe, J. M. (1997). Media interactivity and self-efficacy: An examination of hypermedia first aid instruction. Journal of Health Communication, 2(4), 235-252.

Jan, S. K. (2015). The relationships between academic self-efficacy, computer self-efficacy, prior experience, and satisfaction with online learning. The American Journal of Distance Education, 29, 30-40.

Kapil, Y., & Roy, A. (2014). A critical evaluation of generation Z at workplaces. International Journal of Social Relevance & Concern, 2(1),10-14.

Kauffman, D. & Husman, J. (2004). Effects of time perspective on student motivation: Introduction to a special issue. Educational Psychology Review, 16(1), 1-7.

Khan, B. H. (2005). Managing e-learning: Design, delivery, implementation and evaluation. Information Science Publishing.

Kirk, R. (2008). Statistics: An introduction. (5th edition). Thomson/Wadsworth.

Knapper, K. C., & Cropley, A. J, (2000). Lifelong learning in higher education. Kogan Page.

Kozikoğlu, İ., & Altunova, N. (2018). Öğretmen adaylarının 21. yüzyıl becerilerine ilişkin öz-yeterlik algılarının yaşam boyu öğrenme eğilimlerini yordama gücü [The predictive power of pre-service teachers' self-efficacy perceptions of 21st century skills to lifelong learning tendencies]. Yükseköğretim ve Bilim Dergisi [Journal of Higher Education & Science], 8(3), 522-531.

Lee, Y., & Choi, J. (2011). A review of online course dropout research: Implications for practice and future research. Educational Technology Research and Development, 59, 593-618.

Lee, J.W., & Mendlinger, S. (2011). Perceived self-efficacy and its effect on online learning acceptance and student satisfaction. Journal of Service Science and Management, 4, 243-252 DOI:10.4236/jssm.2011.43029.

Lynch, J. (1977). Lifelong education and the preparation of educational personnel. UNESCO Institute for Education.

Malka, A., & Covington, M. V. (2005). Perceiving school performance as instrumental to future goal attainment: Effects on graded performance. Contemporary Educational Psychology, 30(1), 60-80.

Miller, R.B., DeBacker, T.K., & Greene, B.A. (2000). Perceived instrumentality and academics: The link to task valuing. Journal of Instructional Psychology, 26(4), 250-260.

Newby, T. J., Stepich, D.A., Lehman, J.D., & Russell, J.D. (2006). Educational technology for teaching and learning. Pearson.

Nurmi, J.-E. (1991). How do adolescents see their future? A review of the development of future orientation and planning. Developmental Review, 11, 1-59.

Nuttin, J. R. (1980). Motivation et perspectives d'avenir [Motivation and future time perspective]. Presses Universitaires de Louvain.

Özdemir, A. (2008). Yönetim biliminde ileri araştırma yöntemleri ve uygulamalar [Advanced research methods and applications in management science]. İstanbul: Beta Basım Yayın Dağıtım A.Ş [Beta Publication]. [In Turkish]

Pajares, F. (2002). Gender and perceived self-efficacy in self-regulated learning. Theory into Practice, 41(2), 116-125.

Peechapol, C., Na-Songkhla, L., Sujiva, S., & Luangsodsai, A. (2018). An exploration of factors influencing self-efficacy in online learning: A Systematic Review. iJET, 13(9), 64-86.

Peetsma, T. T. D. (2000). Future time perspective as a predictor of school investment. Scandinavian Journal of Educational Research, 44, 177-192.

Pembenar. (2018). Z kuşağı, gençlerin dinamiklerini değiştirmeye geliyor [Generation Z is coming to change the dynamics of young people]. http://www.milliyet.com.tr/z-kusagi--genclerindinamiklerini-pembenar-detay-cocuk-1864431/. (Retrieved on:03.011.2020)

Pituch, K. A., & Stevens, J. P. (2016). Applied multivariate statistics for the social sciences: Analysis with SAS and IBM's SPSS. (6th Edition). Taylor and Francis.

Prior, D. D., Mazanov, J., Meacheam, D., Heaslip, G., & Hanson, J. (2016). Attitude, digital literacy and self-efficacy: Flow-on effects for online learning behavior. Internet and Higher Education, 29, 91-97.

Robitzsch, A. (2017). Package 'sirt'. http://r.meteo.uni.wroc.pl/web/packages/sirt/sirt.pdf (Retrived on:22.04.2020)

Schunk, D. H. (1985). Self-efficacy and classroom learning. Psychology in the Schools, 22, 208-223.

Shafikhani, M., Bagherian, F., & Shokri, O. (2018). The mediating role of time perspective in the relationship between general self-efficacy and the tendency toward substance abuse in female adolescents. International Journal of Psychology, March, 12(1),208-231. DOI:10.24200/ijpb.2018.58149

Shell, D. F., & Husman, J. (2001). The multivariate dimensionality of personal control and future time perspective in achievement and studying. Contemporary Educational Psychology, 26, 481-506.

Shen, D., Cho, M. H., Tsai, C. L., & Marra, R. (2013). Unpacking online learning experiences: Online learning self-efficacy and learning satisfaction. The Internet and Higher Education, 19, 10-17.

Simons, J., Vansteenkiste, M., Lens, W., & Lacante, M. (2004). Placing motivation and future time perspective theory in a temporal perspective. Educational Psychology Review, 16(2), 121-139.

Sözen, Ü. (2003). Hizmet içi eğitimde yeni açılım e-eğitim [New expansion e-training in in-service training]. Polis Dergisi [Journal of Police], 37(9), 46-48.

Stehlik, T. (2003). Parenting as a vocation: lifelong learning can begin in the home. International Journal of Lifelong Education, 22(4), 367-379.

Tabachnick, B.G., & Fidell L.S. (2013). Using Multivariate Statistics. (6th ed.). Pearson.

Taipjutorus, W. (2014). The relationship between learner control and online learning self-efficacy. (Unpublished Doctoral dissertation), Massey University.

Taipjutorus, W., Hansen, S., & Brown, M. (2012). Investigating a relationship between learner control and self-efficacy in an online learning environment. Journal of Open, Flexible, and Distance Learning, 16(1), 56-69.

TİMDER. (2015). Z kuşağı [Generation Z]. https://www.timder.org.tr/haber//Z-Kusagi/206. (Retrived on: 01.11.2020)

Tunca, N., Alkın Şahin, S., & Aydın, Ö. (2015). Öğretmen adaylarının yaşam boyu öğrenme eğilimleri [Prospective teachers' lifelong learning trends]. Mersin Üniversitesi Eğitim Fakültesi Dergisi [Mersin University Journal of Education Faculty], 11(2), 433-446.

Twenge, J. M., Campbell, S. M., Hoffman, B. J., & Lance, C. E. (2010). Generational differences in work values: Leisure and extrinsic values increasing, social and intrinsic values decreasing. Journal of Management, 36(5), 1117-1142. DOI:10.1177/0149206309352246

Uzun, Z. (2016, Mayıs). Z kuşağı öğrencilerinin akıllı cep telefonu kavramına ilişkin algılarının değerlendirilmesi: Bir metafor analizi çalışması [Evaluation of generation Z students' perceptions regarding the smart smartphone concept: A metaphor analysis study]. 1. Uluslararası Uzaktan Eğitim Araştırmaları Konferansı Bildiri Kitapçığı [1st International Distance Education Research Conference Proceedings Book] (pp. 84-94). Yıldız Teknik Üniversitesi [Yıldız Technical University], İstanbul.

Ünal, K., & Akay, C. (2017). Öğretmenlik mesleği ve yaşam boyu öğrenme: Öğretmen adayları penceresinden [Teaching profession and lifelong learning: From the perspective of teacher candidates]. Mersin Üniversitesi Eğitim Fakültesi Dergisi [Mersin University Journal of Education Faculty], 13(3), 821-838.

Vincent, M. (2006). "Apprendre tout au long de la vie: pourquoi, comment"? Audition Publique Trimestrielle Unesco – Jeudi 27 Avril 2006 Comite Mondial Pour L'Education Et La Formation Tout au Long de La vie.

Walker, T.L., & Tracey, T. J. G. (2012). The role of future time perspective in career decision-making. Journal of Vocational Behavior, 81, 150-158. DOI:10.1016/j.jvb.2012.06.002.

Yavuzalp, N., & Bahçıvan, E. (2020). The online learning self-efficacy scale: Its adaptation into Turkish and interpretation according to various variables. Turkish Online Journal of Distance Education, 21(1), 31-44.

Zimbardo, P. G., & Boyd, J. N. (1999). Putting time in perspective: A valid, reliable individual-differences metric. Journal of Personality and Social Psychology, 77, 1271-1288. http://dx.doi.org/10.1037/0022-3514.77.6.1271.