

Teacher candidates' satisfaction with massive open online courses in Turkey

Rabia Vezne *, Akdeniz University, Faculty of Education, Dumlupınar Boulevard, Campus 07058, Antalya, Turkey
<https://orcid.org/0000-0002-0137-3613>

Suggested Citation:

Rabia V, (2020). Teacher candidates' satisfaction with massive open online courses in Turkey. *Cypriot Journal of Educational Science*. 15(3), 479-491. DOI: 10.18844/cjes.v%vi%i.4914

Received from November 25, 2019; revised from February 8, 2020; accepted from June 24, 2020.

Selection and peer review under responsibility of Prof. Dr. Huseyin Uzunboylu, Higher Education Planning, Supervision, Accreditation and Coordination Board, Cyprus.

©2020 Birlesik Dunya Yenilik Arastırma ve Yayıncılık Merkezi. All rights reserved.

Abstract

Adult education, especially teacher education, is one of the most important issues in Turkey in order to increase the quality of education and to keep up with the countries which aim to become one of the most competitive and knowledge-based economy in the world. Therefore, most of the universities started to improve their distance learning provisions by using massive open online courses (MOOCs). The purpose of this study is to understand teacher candidates' opinions on MOOCs and their satisfaction with MOOCs. A mixed method including qualitative and quantitative approaches was used in this study. Results show that the MOOCs have a positive effect on teacher candidates' personal development and learning life; therefore, they are satisfied with the MOOCs. Only the satisfaction level in learner–instructor interaction is lower in asynchronous courses. As adult learners, they wanted to be more active in MOOCs. These findings improve the understanding of MOOC's learning satisfaction and contribute to design and develop better MOOCs according to learners' needs and demands.

Keywords: adult education, teacher education, distance education;

* ADDRESS FOR CORRESPONDENCE: Rabia Vezne, Akdeniz University, Faculty of Education, Dumlupınar Boulevard, Campus 07058, Antalya, Turkey

E-mail address: rabiavezne@akdeniz.edu.tr / Tel: +90 505 501 3306

1. Introduction

Adult education, especially teacher education, is one of the most important issues in Turkey in order to increase the quality of education and to keep up with the countries which aims to become one of the most competitive and knowledge-based economy in the world. Therefore, most of the universities in the United States, Europe, Asia, and all over the world started to improve their distance learning provisions by using massive open online courses (Gameel, 2017; Pappano, 2012; Vardi, 2012). Similarly, the programs of education faculties are being revised by the Council of Higher Education which is responsible for the planning, coordination and governance of higher education systems in Turkey in accordance with the Turkish Constitution and the Higher Education Laws. In 2018, the Open and Distance Learning course was added to the program of faculty of education to educate teacher candidates. The course focuses on some common terms used in open and distance learning, the history of open and distance learning in Turkey and all over the world.

Since the history of open and distance learning is not old in Turkey, there is a need to learn about the satisfaction level and opinions of users to improve open and distance learning provisions. Although there are many studies about distance learning/MOOCs satisfaction (Gameel, 2017; Holder, 2007; Joo, So & Kim, 2018; Mulenburg & Berge, 2005; Palmer & Holt, 2009; Pena and Yeung, 2010; Sun, Tsai, Finger, Chen & Yeh, 2008; Yang, Tsai, Kim, Cho & Laffey, 2006) among learners in the world and many studies about satisfaction with distance learning in Turkey (Adnan & Yaman, 2017; Eygu & Karaman, 2013; Korkmaz, Cakir & Tan, 2015; Ozturk, Kara, Ozkeskin & Uca Gunes, 2017; Yalman, 2013), there is limited study on Turkish teacher candidates and their satisfaction with MOOCs. Educators and universities, which are using distance learning in most of the must courses, can also use the findings to improve their online courses while designing and developing since it has been noted in many studies that there is a high level of retention in distance learning (Fetzner, 2013; Gaytan, 2015; Huang, Zhang & Liu, 2017; Welsh, Wanberg, Brown & Simmering, 2003).

Although there is limited research about learner experiences and satisfaction with MOOCs, educators need this information since satisfaction has an effect on learner motivation and accordingly learner success. Student satisfaction is also an important issue in MOOCs since this causes an increase in dropout or retention rates. Edwards and Waters (1982) state that satisfaction is a good predictor of retention. It is reported that the retention rates are higher in distance learning when it is compared to face-to-face learning (Richards & Ridley, 1997; Wetzel, Radtke & Stern, 1994). Moreover, experiencing a feeling of isolation is an issue which causes retention (Keegan, 1990). The study by Bailey, Bauman & Lata (1998) shows that there is a high correlation between satisfaction and retention in distance learners.

According to Bolliger and Martindale (2004), factors effecting student satisfaction in traditional classroom settings are student characteristics, quality of relationships with the faculty, curriculum and instruction, student life, support services, resources and facilities. Nevertheless, learners attending MOOCs cannot have a physical classroom and can have difficulty in relationship with instructors and other learners. Therefore, more studies on the satisfaction with MOOCs and distance learning are needed to improve the quality of them and help learners to get maximum benefit.

The overall aim of this study is to understand teacher candidates' opinions on MOOCs and their satisfaction with MOOCs. Because this study employed mixed methods, the specific objectives were formulated in two forms of questions, qualitative and quantitative research questions. Qualitatively, what is the MOOC satisfaction level of teacher candidates? This guided question was supported by three sub-questions:

- What is the MOOC satisfaction level of teacher candidates in learner–learner interaction?
- What is the MOOC satisfaction level of teacher candidates in learner–instructor interaction?
- What is the MOOC satisfaction level of teacher candidates in online interaction?
- What is the MOOC satisfaction level of teacher candidates in technical support?

Is there a difference between teacher candidates' satisfaction level in paid and unpaid courses?

Is there a difference between teacher candidates' satisfaction level in synchronous and asynchronous courses?

Quantitatively, what is the opinions of teacher candidates on MOOC? This main question was advocated by four sub-questions:

(1) What is the effect of MOOC on teacher candidates' personal development?

What is the effect of MOOC on teacher candidates' learning life?

What is their motivation to attend more MOOC?

What is the MOOC they attended like? Why?

2. Method

This is a mixed-method research and researchers used the questionnaire variant (data-validation variant) of the convergent parallel design and to examine the satisfaction level of teacher candidates with MOOCs. In the convergent parallel design, the researcher collects qualitative and quantitative data simultaneously, analyses two sets of data separately and then interprets/compares/combines the results of the data from two sources (Creswell & Plano Clark, 2018). According to Gunbayi (2020), pragmatism is the umbrella philosophy of mixed-method studies, which is a procedure for collecting, analysing and mixing both quantitative and qualitative research and methods in a single study to understand the research problem. The study represents a case study of a public university using a mixed-method approach involving open response questions and a Likert-type scale. The examination of teacher candidates' satisfaction with MOOCs in Akdeniz University involved 108 participants comprised of mathematics teaching, science teaching and pre-school teaching departments.

2.1. Participants and MOOCs

To develop a holistic perspective of satisfaction with MOOCs, participants were recruited from Mathematics Teaching, Science Teaching and Preschool Teaching Programs of Education Faculty at Akdeniz University. The reason for choosing these participants is that only these teacher candidates attended the Open and Distance Learning Course which is an elective course for all teacher candidates in the 2019–2020 Fall Term at Akdeniz University. Therefore, the population of this study consists of all teacher candidates (108 teacher candidates) who attended this elective course. The sampling covers all the population. All the 108 teacher candidates answered the survey and open-response questions. For the qualitative analysis, 20 teacher candidates who answered all the four open-response questions were selected. The researcher used a combination of purposeful and convenience sampling.

Participants contributing to this study ($N = 108$) were undergraduate students from a public university offering teacher education in Turkey. As it can be seen in Table 1, a majority were identified as female ($n = 88$, 81.5%), while a minority identified as male ($n = 20$; 18.5%). Ages ranged from 17 to 25+ years. Majority of the participants ($n = 92$; 85.2%) were aged between 17 and 20 years. Others were between 21 and 25 ($n = 14$; 13%) and 25+ ($n = 2$; 1.9%) years. The department of some participants were identified as science teaching ($n = 51$; 47.2%), others mathematics teaching ($n = 34$; 31.5%) and pre-school teaching ($n = 23$; 21.3%).

All participants had to attend a MOOC which they chose as a term homework during Open and Distance Learning Course. They were free to choose any course that they are interested in; in other words, there were no limitations for choosing their preferred courses. After completing the MOOC, they were asked to fill the online form voluntarily. They were informed about the ethical issues and privacy of the personal data with an online consent form before filling the survey. Participants were informed to think about their current experience in the MOOC that they attended as a term homework prior to taking the survey. The survey took 10–15 minutes to complete. Participants completed the survey in the middle of

the semester between 05th of November, 2019, and 13th of December, 2019, during the fall semester at Akdeniz University.

Table 1. Learner/teacher candidate demographics

Demographics		Frequency	Percent
Gender	Male	20	18.5
	Female	88	81.5
Age	17-20	92	85.2
	21-25	14	13.0
	25+	2	1.9
Department	Mathematics	34	31.5
	Science	51	47.2
	Pre-school	23	21.3

When it comes to MOOCs chosen by the participants, half of the courses were synchronous as shown in Table 2. Majority of the courses ($n = 79$; 73.1%) asked a fee for course certification, and 29 MOOCs did not require a fee for the course certificate. However, it was not compulsory for the students to get a certificate.

Table 2. Course information

		Frequency	Percent
Course certificate fee	Paid	79	73.1
	Un-paid	29	26.9
Course timing	Synchronous	54	50.0
	Asynchronous	54	50.0

Teacher candidates attended different MOOCs that they found in the Turkish language. Teacher candidates mostly attended MOOCs about oration, overcoming stress, elocution, body language and communication strategy, persuasion techniques, body language and communication strategy, sign language, training of trainers, English language, and skim reading according to their interests.

2.2. Instrument

In this study, an online form is used to collect data. The researcher created the online form including both open response questions and Likert-type rating scale. A 20-item survey developed by Ilgaz (2008) as a MA thesis about examining the contribution of technology acceptance and community feeling to learner satisfaction in distance education was used to measure teacher candidates' satisfaction level with MOOCs. The permission from Ilgaz, who developed the survey, was taken via email from the researcher. Then, the online form was created by the researcher to collect answers. The 20-item survey has four dimensions including learner–learner interaction, learner–instructor interaction, online interaction, technical support and seven choices from *strongly agree* to *strongly disagree*.

In the second part of the online form, there were four open response questions. These open-response questions were semi-structured and looked for teacher candidates' opinions with MOOCs, which included questions regarding the effect of the MOOC on their personal development (Q1), the effect of the MOOC on their learning life (Q2), their motivation to attend more MOOC (Q3) and a metaphor question

about the MOOC (Q4). The reason for using semi-structured individual interview is that it would provide an in-depth exploration of the topic, it would allow the flexibility, such as changing the order of questions, simplifying the questions and probing the interviews (Cohen, Mannion & Morrison, 2007).

2.3. Data analysis

Once the online form was closed, the data were downloaded; quantitative data were imported into the SPSS program to calculate descriptive and inferential statistics. After running normality tests (Skewness and Kurtosis), it is determined to run parametric tests. To analyse the MOOC satisfaction level of teacher candidates, mean and standard deviation were conducted. To investigate the difference between teacher candidates' satisfaction level in paid and unpaid courses and in synchronous and asynchronous courses, an Independent Samples *T*-test was conducted.

A total of 20 responses, which have full answers for four open-response questions, were chosen. Descriptive analysis was conducted for these data. Then, the qualitative data were downloaded and read repeatedly at the first step to determine the essence of the phenomenon and structures of experiences of teacher candidates. The data were organised categorically and chronically, reviewed repeatedly and continually coded. Besides, the data analysis process was aided by the use of NVIVO 10 which is a qualitative data analysis computer program. NVIVO 10 programs do not perform the analysis but facilitate and assist it. That is to say, it does not perform the analysis, but it supports the researcher who performs the analysis by organising data and recodes (Cohen et al., 2007; Kelle, 1995).

2.4. Validity and reliability

For the reliability of the survey, Cronbach's Alpha is calculated by Ilgaz (0.95 for learner–learner interaction, 0.96 for learner–instructor interaction, 0.90 for online interaction and 0.93 for technical support). The researcher also did the reliability analysis for this study. Cronbach's Alpha values are 0.91 for learner–learner interaction, 0.94 for learner–instructor interaction, 0.83 for online interactions and 0.94 for the technical support.

To assure reliability and validity of the study, the researcher collected data from various sources, such as individual interviews and survey, used direct quotations from the interviews without making any comments on them, used a purposive sampling method based on voluntarism to get opinions and experiences of teacher candidates. Moreover, two independent researchers coded the data and calculated Cohen's kappa coefficient to determine the inter-rater reliability of themes coded—0.92 perfect agreement—for inner reliability (Landis & Koach, 1977) and kept the records of interviews documents for outer reliability.

3. Results

The results of the study were reported separately by open response questions and survey. To investigate teacher candidates' satisfaction, the participants were asked the extent to which they agree with a series of statements (with 1 = Strongly Disagree and 7 = Strongly Agree). After running normality tests (Skewness and Kurtosis), it is determined to run parametric tests. An Independent Samples *T*-test was run to investigate the differences. To investigate teacher candidates' opinions on MOOCs, four open-ended questions were asked.

3.1. Opinions of teacher candidates

The opinions of the teacher candidates on MOOCs satisfaction were tried to present. The teacher candidates were asked about the effect of the MOOC on their personal development, the effect of the MOOC on their learning life, their motivation to attend more MOOC and a metaphor question about the MOOC. During the research process, participants were offered anonymity.

3.1.1. The effect of the MOOC on teacher candidates' personal development

Teacher candidates were asked about the effect of the MOOC on their personal development. The data can be seen in Table 3.

Table 3. The effect of MOOC on personal development

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	f	%		
1. Beneficial	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	20	100
2. Implementing learnings in daily life	√	√	√			√	√	√	√	√	√	√			√					√	√		13	65.00
3. Saving time																	√						1	5.00
4. Learning more about distance education					√																		1	5.00

As it can be understood from the frequency analysis of the effect of MOOC on teacher candidates' personal development in Table 3, 100% of teacher candidates stated that the MOOC they attended was beneficial for their personal development. The opinions of some participants are as follows: 'Yes, it has. I understood that I am stressing about many things (exams, school) needlessly and I recognised that it effects my life negatively. (O1,1)'; 'Yes, it has because I learnt wrong things that I thought right, extra things about elocution. (S1,1)'.

About 65% of teacher candidates stated that they implemented what they learnt during the MOOC in their daily life. The opinions of the participants are as follows: 'With this program, I leant to use language more carefully and attentively during talking in daily life. (N1,2)'; 'I had a different perspective with the training and I recognised that my perception changed against stressful situations' (J1,2).

When the opinions of teacher candidates on the effect of MOOC on their personal development were analysed generally, they stated that it is absolutely beneficial for their personal development. Accordingly, it was understood that they are eager to use what they learnt from the MOOC they attended in their daily life. They also think that they can save time with attending online courses and learnt a lot about distance education by experiencing it.

3.1.2. The effect of the MOOC on teacher candidates' learning life

Teacher candidates were asked about the effect of the MOOC on their learning life. The data can be seen in Table 4.

Table 4. The effect of MOOC on learning life

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	f	%	
1. Beneficial	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√		18	90,00
2. Becoming a better teacher			√								√		√	√					√	√		6	30,00
3. Learning more about distance education					√																	1	5,00

As it can be understood from the frequency analysis of the effect of MOOC on teacher candidates' learning life in Table 4, 90% of teacher candidates stated that the MOOC they attended were beneficial for their learning life. The opinions of some participants are as follows: 'Absolutely yes because we can come up effective communication in everywhere and it is more important in my learning life, so it helped me to correct my speaking and make it more effective and fluent. (B2,1)'; 'Absolutely it is beneficial. Especially, I am really very stressful during exam weeks and I learnt how to cope with it, and it helps me to adapt lessons more, and become calmer. (G2,1)'; 'Of course, it has. It was a first experience for me, I heard about it in other universities and it was a difference in my course, since we were relax, I understood more freely' (L2,1).

About 30% of teacher candidates stated that the MOOC will contribute their learning life to become a better teacher. The opinions of one participant are as follows: 'Yes, it has, because I am studying at teaching department, and I believe that my diction should be smooth during the presentations I do and in my teaching profession. (S2,2)'; 'We will become teachers in the future and speaking correctly and right is so important, students will listen to teachers who have a good diction with an interest (C2,2)'. Another one is as follows:

Yes, it has. During my learning life, I have interaction with my friends and instructors. When I think forward, our students and colleagues will take the place of our friends and instructors. Therefore, I attended a training which I can use in every part of my life and I will try to implement it. (T2,2)

When the opinions of teacher candidates on the effect of MOOC on their learning life were analysed generally, they stated that it is absolutely beneficial for their professional development. Accordingly, it was understood that they are eager to use what they learnt from the MOOC they attended to become a better teacher. They also think that they learnt a lot about distance education by experiencing it.

3.1.3. Teacher candidates' motivation to attend more MOOC

Teacher candidates were asked about their motivation to attend more MOOC after this online course. The data can be seen in Table 5.

Table 5. The motivation to attend more MOOC

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	f	%		
1. Yes	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	20	100
2. To improve myself	√	√				√	√		√	√	√		√	√	√				√	√			12	60.00
3. Feeling freedom				√										√	√				√				4	20.00
4. Free course					√			√						√									3	15.00
5. Certificate												√				√							2	10.00

As can be understood from the frequency analysis of the motivation to attend more MOOC in Table 5, 100% of teacher candidates stated that they wanted to attend more MOOC. The opinion of one participant is as follows: 'The duration of this course was short. It can be reinforced with more activities. I would like to attend a course on a different topic. (A3,1)'.

About 60% of teacher candidates stated that their motivation to attend more MOOC is to improve themselves. Some opinions of the participants are as follows: 'Because correct and effective speech is the topic I have to improve myself. (A3,2)'; 'Yes, I would like to attend again because I both spend my free time and improve myself. (F3,2)'; 'Yes, to improve myself and become an indispensable teacher' (K3,2).

Around 20% of teacher candidates stated that their motivation to attend more MOOC is feeling freedom. The opinions of the participants are as follows: 'First of all, I can watch whenever I want since it

was asynchronous. I can stop the video and continue watching when I want and access the course in a freely (D3,3)'; 'Of course I would like to attend this kind of training, because we can attend this course without going anywhere and whenever we want. (N3,3)'

I was very efficient. In the last live lesson, the instructor listened to us and corrected our mistakes, this makes the lesson more effective. In the beginning, I thought that how I can get information in an electronic media, what will can after the course. At the end of the 4th hour, I recognised that I started to pay attention to my speaking and learnt the basics. (C3,3)

However, 15% of teacher candidates stated that they want to attend more MOOC since it is free; 10% of teacher candidates stated that their motivation to attend more MOOC is to get a certificate.

When the opinions of teacher candidates on their motivation to attend more MOOC were analysed generally, all of them stated that they would like to attend more MOOC. Since they are adults, they have internal motivation, and they would like to improve themselves. Moreover, feeling of freedom during asynchronous courses, not paying for the course, and getting a certificate are the main motivators of teacher candidates as adult learners to attend more MOOCs.

3.1.4. Metaphors for the MOOC

The metaphors formulated by 20 teacher candidates can be categorised under six themes as in Table 6: nature, things, person, animal, place, and activity. Six of the participants formulated nature metaphors in defining MOOC. B described the MOOC as a fruit on a fruit tree: 'It is like a fruit I took from a fruit garden because there are many trainings in the world to develop myself. With this training, I took a fruit from that garden'. On the other hand, L used a sea metaphor and stated that 'it is like a sea, I can shape my own education unless any giant wave comes'. This can be interpreted as the participant taking the control of his/her own education.

Table 6. Metaphors for the MOOC

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	f	%
1. Nature		√	√	√		√						√								√	6	30,00
2. Things									√	√						√		√	√		5	25,00
3. Person		√					√							√	√						4	20,00
4. Animal											√							√			2	10,00
5. Place					√								√								2	10,00
6. Activity								√													1	5,00

Five of the teacher candidates formulated things metaphor in defining MOOC. I described MOOC as painkiller: 'I liken it a painkiller medicine. Since stress makes headache. With this training, I relaxed a little bit and reached some solutions'. Similarly, J described MOOC as a window which has a relaxing view. On the other hand, S described MOOC as a film: 'I can liken it a film, because we, students, watch like spectators, and the instructor narrates the course like a film'. This can be interpreted as learners in MOOC feel themselves inactive during MOOC.

Four of the teacher candidates formulated person metaphor in defining MOOC. N described MOOC as an extended family: 'I liken this training as an extended family. Instructor is the eldest and the most experienced person who is transferring his/her experiences to the individuals in the family'. These can be interpreted as the learners see themselves passive and the instructor as someone transferring information and experiences.

Two of the teacher candidates formulated animal metaphor in defining MOOC. Other two participants formulated activity and place metaphors in defining MOOC. For example, M described MOOC as a library: 'The training I attended is mostly like a library setting. Since we go to library to study with our will rather than an obligation, and the time we spend there is very fruitful. I think these trainings are as

effective and fruitful as the time we spend in the library'. These can be interpreted that the participant thinks that MOOCs are the trainings that they can choose with their own will and more effective and fruitful than compulsory education.

As can be understood from the frequency analysis of metaphors defined by teacher candidates in Table 6, the MOOCs are perceived as different and nice alternative for formal education system, a training that they can choose with their own will and more effective and fruitful than compulsory education, but a training where learners feel themselves inactive.

3.2. Satisfaction with MOOCs

The data collected by a survey of the study were reported according to the last three research questions: What is the MOOC satisfaction level of teacher candidates? Is there a difference between teacher candidates' satisfaction level in paid and unpaid courses? Is there a difference between teacher candidates' satisfaction level in synchronous and asynchronous courses?

3.2.1. MOOC Satisfaction level of teacher candidates

The MOOC satisfaction level of teacher candidates can be seen in Table 7. It is found that teacher candidates' MOOC satisfaction levels in learner–instructor interaction and online interaction are high. However, their MOOC satisfaction level in learner–learner interaction and technical support are midlevel. These findings are also supported with the open-response question analysis.

Table 7. The MOOC satisfaction level of teacher candidates

	<i>X</i>	<i>S.s</i>
Learner–learner	4.25	8.95
Learner–instructor	5.30	8.05
Online interaction	5,66	6.33
Technical support	4.73	5.18

3.2.2. Satisfaction level according to paid and unpaid courses

When the satisfaction level of teacher candidates was investigated and Independent Samples *T*-Test was run as seen in Table 8, it is found that there is no significant difference in paid and unpaid courses.

Table 8. Independent samples *T*-test results of paid and unpaid courses

		<i>n</i>	<i>X</i>	<i>S.s</i>	<i>t</i>	<i>p</i>
Learner–learner	Paid	79	25.19	8.58	-0.645	0.520
	Un-paid	29	26.45	10.02		
Learner–instructor	Paid	79	26.67	7.69	0.382	0.703
	Un-paid	29	26.00	9.11		
Online interaction	Paid	79	32.47	6.30	-1.759	0.082
	Un-paid	29	34.86	6.17		
Technical support	Paid	79	13.96	4.90	-0.830	0.408
	Un-paid	29	14.90	5.92		

**p* < 0.05.

3.2.3. Satisfaction level according to synchronous and asynchronous courses

When the satisfaction level of teacher candidates was investigated and Independent Samples *T*-

test was run as seen in Table 9, it is found that there is no significant difference in synchronous and asynchronous courses among learner–learner interaction, online interaction and technical support. On the other hand, there is a significant difference in synchronous and asynchronous courses among learner–instructor interaction. In synchronous courses, the satisfaction level among learner–instructor interaction is higher than the one in asynchronous courses.

Table 9. Independent samples *T*-test results of synchronous and asynchronous courses

		<i>n</i>	<i>X</i>	<i>S.s</i>	<i>t</i>	<i>p</i>
Learner–learner	Synchronous	54	27.17	7.54	1.926	0.057
	Asynchronous	54	23.89	9.98		
Learner–instructor	Synchronous	54	28.26	6.73	2.328	0.022*
	Asynchronous	54	24.72	9.90		
Online interaction	Synchronous	54	33.94	6.24	1.374	0.172
	Asynchronous	54	32.28	6.36		
Technical support	Synchronous	54	14.39	5.17	0.352	0.726
	Asynchronous	54	14.04	5.23		

**p* < 0.05.

4. Discussion

The aim of the current research is to provide a better insight into the teacher candidates' satisfaction on MOOCs. The interviews reaffirmed the positive effect of MOOC on teacher candidates' personal development and learning life. Accordingly, it was understood that they saved time attending online courses, learnt a lot about distance education by experiencing it and helped them to become a better teacher. As it is known and stated by Cercone (2008), adult learners are problem-centred learners and they want to learn something to use in their personal and professional lives. Similarly, in this study, teacher candidates, as adult learners, chose and attended MOOCs which will help them to learn new skills to become better teachers. Moreover, they stated that they would like to attend more MOOC, since they have internal motivation to improve themselves. Studies in the field also revealed that adults are self-directed towards goals and they are inner motivated (Knowles, 1980; Lieb, 1991; Merriam, 2001; Merriam & Caffarella, 1999). Moreover, feeling of freedom during asynchronous courses, not paying for the course and getting a certificate are the main motivators of teacher candidates as adult learners to attend more MOOCs. Similarly, Buckley (2003) highlighted that convenience and time flexibility are advantages of distance learning. In this study, it is found that teacher candidates as adults prefer it also for these reasons. These findings of the study are also consistent with previous research that shows course flexibility is important in learner satisfaction with MOOCs (Liu et al., 2014). Besides these opinions, the MOOCs are perceived as a different and nice alternative for the formal education system, a training that they can choose with their own will and more effective and fruitful than compulsory education. All these findings support that they are satisfied with the MOOC. Many studies show that students are satisfied with distance learning (Arbaugh, 2000; Hiltz, 1993; Navarro, 2000; Powers, Davis & Torrence, 1999).

The survey results also reaffirmed a higher level of MOOC satisfaction. In particular, teacher candidates' MOOC satisfaction level in learner–instructor interaction and online interaction are high level. However, their MOOC satisfaction level in learner–learner interaction and technical support are midlevel. Similarly, Gameel (2017) found that learner–learner interaction does not have an effect on learner satisfaction with the MOOC. Besides, Palmer and Holt (2009) found that learners have the lowest satisfaction levels on learner–learner interaction. On the other hand, it is stated in the study of Hart-Davidson (2014) that most MOOC environments do not give priority to learner–learner interaction in their course design. These findings are also supported with the open response question analysis. Moreover,

there is no significant difference between paid and unpaid courses. Besides, there is no significant difference in synchronous and asynchronous courses among learner–learner interaction, online interaction and technical support. On the other hand, there is a significant difference in synchronous and asynchronous courses among learner–instructor interaction. In synchronous courses, the satisfaction level among learner–instructor interaction is higher than the one in asynchronous courses.

One of the most important findings is that teacher candidates' feel themselves inactive during MOOC, especially in asynchronous courses. The low satisfaction level in asynchronous courses can be explained by this finding. In this context, the open response question results were supported by the survey results. This is also true for adult learners since adults want to be active in their learning and they want to implement what they learnt (Cercone, 2008).

5. Conclusion

The aim of the current research was to provide a better insight into the teacher candidates' satisfaction on MOOCs. As adult learners, teacher candidates satisfied with MOOCs they attended since they thought that they had a positive effect on their personal development and learning life. Since adults are motivated internally, they feel freedom during asynchronous courses, not paying for the course, and getting a certificate, they would like to attend more MOOCs in the future. They also perceive MOOCs as a different and nice alternative for the formal education system, a training that they can choose with their own will and more effective and fruitful than compulsory education. These findings reveal that teacher candidates as adult learners will attend more MOOCs during their life and educators who organise MOOCs should pay more attention to design courses which activates and appeals learners.

6. Recommendations

It is found in this research that teacher candidates are satisfied with MOOCs and have mostly positive opinions on MOOCs. However, some findings revealed that MOOC and distance learning providers should design these online courses according to the adult education theories and the principals of adult education since adults learn in a different way than children or teenagers. Therefore, adult learning needs and principles should be taken into consideration not only while designing the content of these online courses but also while giving technical support. More research studies can be done to investigate the online courses in terms of principals of adult education. Moreover, retention in distance learning is an important issue in online courses, and it has a strong relevance with satisfaction, so it can be investigated in the future studies. In particular, reasons for retention and the relevance with the principle of adult education can be studied.

References

- Adnan, M. & Yaman, B. B. (2017). Muhendislik ogrencilerinin e-ogrenmeye dair beklenti, hazir bulunusluk ve memnuniyet duzeyleri. *Turkish Journal of Computer and Mathematics Education*, 8(2), 218–243. Retrieved from https://www.researchgate.net/profile/Muege_Adnan/publication/317354025_Muhendislik_Ogrencilerini_E_Ogrenmeye_Dair_Hazir_Bulunusluk_ve_Memnuniyet_Duzeyleri/links/59cccc710f7e9bbfdc400e81/Muehendislik-Ogrencilerinin-E-Ogrenmeye-Dair-Hazir-Bulunusluk-ve-Memnuniyet-Duezeyleri.pdf
- Arbaugh, J. B. (2000). Virtual classroom characteristics and student satisfaction with internetbased MBA courses. *Journal of Management Education*, 24(1), 32–54. doi:10.1177/105256290002400104
- Bailey, B. L., Bauman, C. & Lata, K.A. (1998). *Student retention and satisfaction: the evolution of a predictive model*. Paper presented at the meeting of the Association for Institutional Research Conference, Minneapolis, MN. (ERIC Document Reproduction Service No. ED424797).

- Bolliger, D. U. & Martindale, T. (2004). Key factors for determining student satisfaction in online courses. *International Journal on E-Learning*, 3(1), 61–67.
- Buckley, K. M. (2003). Evaluation of classroom-based, web-enhanced, and web-based distance learning nutrition courses for undergraduate nursing. *The Journal of Nursing Education*, 42(8), 367–70. <https://doi.org/10.3928/0148-4834-20030801-09>
- Cercone, K. (2008). Characteristics of adult learners with implications for online learning design. *AACE Journal*, 16(2), 137–159.
- Cohen, L., Mannion, L. and Morrison, K. (2007). *Research methods in education*. Abingdon, UK: Routledge, Taylor and Francis Group.
- Creswell, J. W. & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research* (3rd ed.). Thousand Oaks, CA: Sage Publications, Inc.
- Edwards, J. E. & Waters, L. K. (1982). Involvement, ability, performance, and satisfaction as predictors of college attrition. *Educational and Psychological Measurement*, 42, 1149–1152. <https://doi.org/10.1177/001316448204200421>
- Eygü, H. & Karaman, S. (2013). Uzaktan eğitim öğrencilerinin memnuniyet algıları üzerine bir araştırma. *Sosyalbilimler (Socialsciences)*, 3(1), 36–59. Retrieved from <https://dergipark.org.tr/en/download/article-file/181058>
- Fetzner, M. (2013). What do unsuccessful online students want us to know? *Journal of Asynchronous Learning Networks*, 17(1), 3–27.
- Gameel, B. G. (2017). Learner satisfaction with massive open online courses. *The American Journal of Distance Education*, 31(2), 98–111. doi:10.1080/08923647.2017.1300462
- Gaytan, J. (2015). Comparing faculty and student perceptions regarding factors that affect student retention in online education. *The American Journal of Distance Education*, 29(1), 56–66. doi:10.1080/08923647.2015.994365
- Gunbayı, I. (2020). Knowledge-constitutive interests and social paradigms in guiding mixed methods research (MMR). *Journal of Mixed Methods Studies*, (1), 44–56 [Online]. Retrieved from www.jomesonline.com. doi: 10.14689/jomes.2020.1.3
- Hart-Davidson, B. (2014). Learning many-to-many: the best case for writing in digital environments. In S. Krause & C. Lowe (Eds.), *Invasion of the MOOCs* (p. 212). Retrieved from http://www.parlorpress.com/pdf/invasion_of_the_moocs.pdf
- Hiltz, S. R. (1993). Correlates of learning in a virtual classroom. *International Journal of Man-Machine Studies*, 39, 71–98. <https://doi.org/10.1006/imms.1993.1054>
- Holder, B. (2007). An investigation of hope, academics, environment, and motivation as predictors of persistence in higher education online programs. *The Internet and Higher Education*, 10, 245–260. doi:10.1016/j.iheduc.2007.08.002
- Huang, L., Zhang, J. & Liu, Y. (2017). Antecedents of student MOOC revisit intention: moderation effect of course difficulty. *International Journal of Information Management*, 37(2), 84–91. <https://doi.org/10.1016/j.ijinfomgt.2016.12.002>
- İlgaz, H. (2008). *Uzaktan eğitimde teknoloji kabulünün ve topluluk hissinin öğrenen memnuniyetine katkısı (The contribution of technology acceptance and community feeling to learner satisfaction in distance education)* (Master's thesis). Hacettepe Üniversitesi, Ankara, Turkey.
- Joo, Y. J., So, H. -J. & Kim, N. H. (2018). Examination of relationship among students' self-determination, technology acceptance, satisfaction, and continuance intention to use K-MOOCs. *Computer and Education*, 122, 260–272. doi:10.1016/j.compedu.2018.01.003
- Keegan, D. (1990). *Foundations of distance education* (2nd ed.). New York: Routledge.
- Kelle, U. (1995). *Computer aided qualitative data analysis*. London, UK: Sage.
- Knowles, M. S. (1980). *The modern practice of adult education: from pedagogy to andragogy*. Englewood Cliffs, NJ: Cambridge Adult Education.
- Korkmaz, O., Cakir, R. & Tan, S. S. (2015). Öğrencilerin e-öğrenmeye hazır bulunuşluk ve memnuniyet düzeylerinin akademik başarıya etkisi. *Ahi Evran Üniversitesi Kırşehir Eğitim Fakültesi Dergisi (Ahi Evran University Faculty of Education Journal)*, 16(3), 219–241. Retrieved from http://kefad.ahievran.edu.tr/InstitutionArchiveFiles/f44778c7-ad4a-e711-80ef-00224d68272d/d1a3a581-af4a-e711-80ef-00224d68272d/Cilt16Sayi3/JKEF_16_3_2015_219_241.pdf
- Landis, J. R. & Koch, G. G. (1977). The measurement of observer agreement for categorical data. *Biometrics*, 33(1), 159–174.

- Lieb, S. (1991). *Principles of adult learning*. Phoenix, AZ: Vision—South Mountain Community College. Retrieved May 4, 2020, from <https://petsalliance.org/sites/petsalliance.org/files/Lieb%201991%20Adult%20Learning%20Principles.pdf>
- Liu, M., Kang, J., Cao, M., Lim, M., Ko, Y., Myers, R. & Weiss, A. S. (2014). Understanding MOOCs as an emerging online learning tool: Perspectives from the students. *The American Journal of Distance Education*, 28(3), 147–159. doi:10.1080/08923647.2014.926145
- Merriam, S. B. (2001). Andragogy and self-directed learning: pillars of adult learning theory. *New Directions for Adult and Continuing Education*, 89, 3–13. <https://doi.org/10.1002/ace.3>
- Merriam, S. B. & Caffarella, R. S. (1999). *Learning in adulthood* (2nd ed.). San Francisco, CA: Jossey-Bass.
- Muilenburg, L. Y. & Berge, Z. L. (2005). Student barriers to online learning: a factor analytic study. *Distance Education*, 26(1), 29–48. <https://doi.org/10.1080/01587910500081269>
- Navarro, P. (2000). The promise-and potential pitfalls-of cyberlearning. In R. A. Cole (Ed.), *Issues in web-based pedagogy* (pp. 281–297). Westport, CT: Greenwood Press.
- Ozturk, A., Kara, Y., Ozkeskin, E. E. & Uca Gunes, E. P. (2017). Acik ve uzaktan ogrenenlerin ogrenme yonetim sistemi ve ogrenme malzemelerine iliskin memnuniyet durumlari. *Acikogretim Uygulamaları ve Arastirmalari Dergisi (Open Education Implementations and Research Journal)*, 3(4), 81–107. Retrieved from <https://dergipark.org.tr/en/download/article-file/403880>
- Palmer, S. R. & Holt, D. M. (2009). Examining student satisfaction with wholly online learning. *Journal of Computer Assisted Learning*, 25(2), 101–13. doi:10.1111/j.1365-2729.2008.00294.x
- Pappano, L. (2012). The year of the MOOC. *The New York Times*, 2(12), 2012.
- Pena, M. & Yeung, A. (2010). Satisfaction with online learning: does students' computer competence matter? *International Journal of Technology, Knowledge and Society*, 6(5), 97–108.
- Powers, S. M., Davis, M. & Torrence, E. (1999). *Person-environment interaction in the virtual classroom: An initial examination*. Paper presented at the National Convention of the Association for Educational Communications and Technology, Houston, TX. (ERIC Document Reproduction Service No. ED 436 185).
- Richards, C. N. & Ridley, D. R. (1997). Factors affecting college students' persistence in on-line computer-managed instruction. *College Student Journal*, 31, 490–495.
- Sun, P.C., Tsai, R. J., Finger, G., Chen, Y. Y. & Yeh, D. (2008). What drives a successful e-learning? An empirical investigation of the critical factors influencing learner satisfaction. *Computers and Education*, 50(4):1183–202. doi:10.1016/j.compedu.2006.11.007
- Vardi, M. Y. (2012). Will MOOCs destroy academia? *Commun. ACM*, 55(11), 5.
- Welsh, E. T., Wanberg, C. R., Brown, K. G. & Simmering, M. J. E. (2003). E-learning: emerging uses, empirical results and future directions. *International Journal of Training and Development*, 7(4), 245–258. <https://doi.org/10.1046/j.1360-3736.2003.00184.x>
- Wetzel, C. D., Radtke, P. H. & Stern, H. W. (1994). *Instructional effectiveness of video media*. Mahwah, NJ: Lawrence Erlbaum.
- Yalman, M. (2013). Egitim fakultesi ogrencilerinin bilgisayar destekli uzaktan egitim sistemi (MOODLE) memnuniyet duzeyleri. *Electronic Turkish Studies*, 8(8), 1395–1406. Retrieved from <http://eds.b.ebscohost.com/abstract?site=edsandscope=siteandjrnl=13082140andAN=91652837andh=yP5KiHRWVUkMQph8VK11CY8HrkuDvell0hbNVRmiwj5QS7mA5kxGbv44XfWsirFoPALfhXyXISD9Fg3xc1dQ%3d%3dandcrl=fandresultLocal=ErrCrlnResultsandresultNs=Ehostandcrlhashurl=login.aspx%3fdirect%3dt rue%26profile%3dehost%26scope%3dsite%26authtype%3dcrawler%26jrnl%3d13082140%26AN%3d91652837>
- Yang, C. C., Tsai, I. C., Kim, B., Cho, M. -H. & Laffey, J. M. (2006). Exploring the relationships between students' academic motivation and social ability in online learning environments. *The Internet and Higher Education*, 9(4), 277–286. <https://doi.org/10.1016/j.iheduc.2006.08.002>