Using Technology in Education, Self-efficacy and Technology Acceptance Levels of Teacher Candidates[1]

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Article Info	ABSTRACT
	The aim of this study is to determine the level of prospective teachers' acceptance of technology and their self-efficacy perception levels pertaining to using technology in education. In this study, mixed methods research design was used. The study group consists of 280 prospective teachers who currently study in various departments and classes at Amasya University, Faculty of Education. The data of the study were collected using personal information form, the technology acceptance scale, and the using technology in education self-efficacy perception scale. Mean, standard deviation, minimum and maximum values, independent samples t-test, ANOVA, regression and Pearson r correlation analysis were used to analyze the colllected data. Results showed that, prospective teachers' technology acceptance levels and the self-efficacy levels of using technology in education are high enough and these levels do not differ by gender. The score of the students in CEIT department

was higher than others. Moreover, the lowest levels was observed through the mean scores of the teacher candidates at the Mathematics Education Department. As teacher candidates use technology in education and self-efficacy belief levels increase, their level of acceptance of technology in education also increases. The teacher candidates express that they will use technology as a basis in their professional lives to enrich teaching practices and improve themselves and give their students better educational opportunuties.

Introduction

With the entire of technology into our lives, it has led to changes in many areas, especially education, that have decisive qualities in the future of the country. Technology in education is used to improve quality (NEMO, 2004). Also called 21st century skills, it is aimed to educate students as 'science literate individuals 'who can investigate, question, access and use information, make decisions effectively, collaborate, be confident and communicate effectively (Kaya & Yilayaz, 2013). In line with this goal, educational institutions aim to enrich the use of technology that teachers and students can use in and out of the classroom. The use of technology in education started with the use of tools such as overhead projector, video, radio, television for teaching purposes and is carried out today with computer, phone, internet and close technologies (Aksoy, 2003). Increasing employment opportunities bring with them the necessity of having a qualified workforce. The use of technology in education is seen as a necessity in order to cover this gap in the labor force and new job opportunities (Karaman, 2010). An education system that does not benefit from the technological possibilities of its current era cannot adapt to the needs of the individual and society. Therefore, it is emphasized that the technology used in education should always be used by moving to advanced levels (Karasar, 2004).

With the increase in technology-based hardware in schools, it is important for teachers to use the technological advantages offered more effectively (Sert, Kurtoğlu, Akıncı and Seferoğlu, 2012; Chen, Looi & Chen, 2010). Thus, the duty of our teachers, who have an important role in making education and training more qualified, becomes important (Şahin, 2011). It is necessary to determine the needs of the present day and to determine the extent to which the developing scientific, economic, social and technological developments affect the expectations needed by the society (Arpa, 2017). In order to give the desired results of the program, teachers who will use the program in practice need to integrate education and technology by adopting new approaches (Aygün, 2009). In a study conducted by Usta ve Korkmaz (2010) with teacher candidates, the attitudes of teachers who have intermediate and higher computer skills towards their profession differed significantly compared to teachers who have low computer skills. Furthermore, as the values of effective use of technology in their professional lives increase, their interest and attitudes towards their profession also increase (Usta & Korkmaz, 2010). Given the increase in technology competence in teachers and the increase in the relationship between technology competence and attitudes towards technology, a solid foundation of technology-based education should be established in the training of teacher candidates (Çetin, Çalışkan & Menzi, 2012).

There are studies in the literature that visibly involve different perspectives on teachers' use of technology. Sayginer (2016) stated in a study that individuals who own the internet and computers have a stronger ability to use them than those who do not. However, there was no correlation between teacher candidates' perceptions of these variables versus technology. In a study conducted by Akpınar (2003), he considered the institutions in which the teachers were trained to be aware of and benefit from the renewed technology as the primary source for informing the teachers. Similarly, in a study conducted by Erdemir, Bakırcı and Eyduran (2009) with teacher candidates, the teachers' lack of sufficient self-confidence was linked to the education taken during their student years. A survey of classroom teachers shows that teachers prefer to use traditional resources instead of using the technologies that come with computers (Adigüzel, 2010). A similar result also concluded that our teachers did not use the educational technologies used to help them to function adequately (Şişman, 2002). Teachers generally do not make any effort when it comes to the integration of technology into education, even if they have computer skills (Demiraslan & Koçak Usluel, 2005). Lack of adequate infrastructure, lack of alignment of the curriculum and lack of knowledge are the deficiencies stated for the teachers (Cagiltay, Çakıroğlu, Cagiltay & Çakıroğlu, 2001). In addition, many studies in the literature show that the technological competencies of teacher candidates are not compatible with the teaching required by today's conditions (Yılmaz & Ayaydın, 2015; Kahyaoglu, 2011; Kocasaraç, 2003; Tınmaz, 2004).

Davis (1989) describes technology acceptance model over the behavior of individuals in their use of technology. The perceived ease of use and perceived benefit of a new technology that has gained a place in life according to the technology acceptance model is greatly effective on acceptance by users. Perceived benefit is an individual's belief in the rise in their own performance in the use of information and communication technologies, while perceived ease of use is an individual's lack of effort in the use of information and communication technologies (Davis, 1989). In another study, it was stated that the wishes and behaviors of users to use technology provide convenience and benefits, that it is intended for their profession, that it is functional and that it provides visible benefits (Venkatesh & Davis, 2000). In a study by Liao and Chenung (2001), they emphasized the importance of the technology acceptance model for researchers in the process of uncovering the behavior of the individual in the use of technology.

Self-efficacy is defined as behaviors that occur when a desired effort is made in a designated area (Akkoyunlu & Orhan, 2003). For example, high self-efficacy may be demonstrated in psychomotor skills, while low self-efficacy may be demonstrated on self-expression. In this context, the level of self-efficacy depends on the individual and may be considered to vary according to interests and needs. Self-efficacy perception in individuals plays an important role in determining how to react to situations they face (Yaman, Cansüngü Koray & Altunçelik, 2004). In another study, individuals with high self-efficacy perception on the same subject were described as stable, patient, non-quitter, and self-efficacy perception was based on experience with frequency of use (Aşkar & Umay, 2001). It can be said that individuals with negative experiences often have low perceptions of self-efficacy.

As examined in the literature, our teachers have a large share in integrating technology into the educational process. Accordingly, the aim of this study is to describe the relationship between the students in terms of their level of acceptance of technology and their level of self-efficacy perception of using technology in education. For this general purpose, answers to the following questions were sought:

1. Are the using technology in education self-efficacy and technology acceptance levels of teacher candidates different according to the departments?
2. Are the using technology in education self-efficacy and technology acceptance levels of teacher candidates different according to their gender?
3. Are the using technology in education self-efficacy and technology acceptance levels of teacher candidates different according to class levels?
4. Is there a relationship between using technology in education self-efficacy and technology acceptance levels of teacher candidates?
5. What are the views of the teachers regarding the impact of technology on education?
6. What are the teacher candidates ' thoughts about using technology in their professional lives?

Method

Research Design

In this study, mixed research method was used to answer the research questions mentioned above. A descriptive survey model was used in the quantitative section. In the qualitative part, snowball technique was used in collecting data. The descriptive survey model is a research model that aims to describe a situation that has happened in the past or is still ongoing as it exists (Karasar, 2009). Interviews were conducted with the teacher candidates determined by the snowball technique used in the qualitative section. Later, the number of people interviewed by the propositions of the teacher candidates was increased.

Study Group

For the quantitative part of the study, the participants consist of 280 candidates who are studying in the Departments of Computer Education and Instructional Technology Education (CEIT), Science and Elementary Mathematics Education at Amasya University Faculty of Education. Easy sampling method was used to determine the working group. The distribution of teacher candidates by department and gender is summarized in Table 1.

Table 1. Characteristics of Participants by Gender and Department

Department	Female	Male	Total
Computer Education and Instructional Technology	38	30	68
Elementary Mathematics Education	93	29	122
Science Education	66	24	90
Total	**197**	**83**	**280**

The qualitative dimension of the study, the study group consisted of 9 randomly selected from CEIT (3), Science (2) and Elementary Mathematics Edcuation (4) departments. The study group consists of 5 women and 6 men. The distribution of teacher candidates by department and gender is summarized in Table 2.

Table 2. Characteristics of Participants by Gender and Department

Deaprtments	Female	Male	Total
Computer Education and Instructional Technology	2	1	3
Elementary Mathematics Education	3	1	4
Science Education	-	2	2
Total	**5**	**4**	**9**

Data Colection Tools

In the quantitative part of the study, the data were collected by the personal data form, the technology acceptance scale and the using technology in education self-efficacy perception scale, while in the qualitative dimension the semi-structured interview form was used as the data collection tool. The personal information form contains questions such as gender, age, grade level and department. The form was created by the researchers. In addition, an interview form consisting of 15 open-ended questions prepared by the researchers were used.

Technology acceptance scale

This scale was developed by Ursavaş, Sahin and McILROY (2014). The technology acceptance scale, which is used to measure the level of acceptance of technology by prospective teachers, consists of 37 items. There are 11 factors in this scale as; perceived usefulness of the content of the scale (4 items), perceived ease of use (3 items), attitude towards use (4 items), subjective norm (3 items), self-sufficiency (3 items), facilitating conditions (3 items), the technological chaos (3 items), anxiety (3 items), perceived entertainment (4 items), conformity (3 items) and behavioral intention (4 items). The quintet is a scale of the likert type. The reliability coefficient of the scale was determined by Cronbach Alpha. The lowest was found on the self-efficacy factor with 0.798, and the highest was found on the recreational factor with 0.909.

Using technology in education self-efficacy perception scale

It was developed by Tınmaz (2004) in order to measure teacher candidates ' perceptions about using technology in education. The scale is of the quintet likert type and consists of 28 items determined under the factors "belief in the positive impact of Technology in education" and "impact of Technology on the Undergraduate Program". Answers to items are listed as strongly disagree (1), disagree (2), undecided (3), agree (4), strongly agree (5). According to the validity and reliability studies, cronbach Alpha coefficient was obtained as 0.86.

Collection of Data

Collection of quantitative data: the teachers' candidates were reached through the instructors working at Amasya University Faculty of Education. The same questionnaires were applied to different grade levels of the designated departments. It took about two weeks for the data to be collected. Data for the study was collected during the fall semester of the 2018-2019 term.

Collection of qualitative data: Teacher candidates were reached using the snowball method. Baltacı (2018) describes the snowball method as being able to explain existing

situations with different cases by reaching from person to person. In chained research, the data collection process is completed when the data is satisfied (Kerlinger & Lee, 1999). The interviews of the teacher candidates at their available time lasted approximately 30 minutes. The interviews were written off after being recorded with a recorder. It took about 2 weeks for the data to be collected.

Data Analysis

For easy comparison of factors and total scores, the scores were converted to the lowest 20 and the highest 100. The percentages against the scores obtained from the scales are determined as follows:

- 20- 50: Low-level
- 21-69: Mid-level
- 70-100: High-level

The data collected for the quantitative part of the study were analyzed using descriptive analyses, independent sample t, Anova, regression and Pearson r correlation analyses. The qualitative data were encoded with Nvivo program and evaluated with content analysis.

Results

The results of the self-efficacy levels of teacher candidates to accept and use technology in education are summarized in Table 3.

Table 3. Self- efficacy perception levels of teachers' acceptance and use of technology in education

Factors	N	X	Sd	Min	Max
Level of Acceptance of Technology		142,2	22,3	59	185
Perception of Self-Efficacy-Belief		65,9	10,8	20	80
Perception of Self-efficacy- Impact on Undergraduate Programs	280	45,1	8,8	12	60
Perception of Self-Efficacy-Total Score		111,1	17,7	32	140

In Table 3, it is seen that the mean score of teacher candidates is 142.2 when technology acceptance levels are examined. Given that the lowest score is 59 and the highest score is 185, it can be said that the acceptance of technology in general levels of teacher candidates is high enough. As shown in Table 3, it is seen that the average level of self-efficacy perception of teacher candidates for the use of technology in education is 111.1. In terms of factors, the average for belief in self-efficacy factor is 65.9. Given that the score ranges are between 20 and 80, it can be said that teacher candidates have high enough self-efficacy beliefs. The other factor related to self-efficacy, the effect on the undergraduate program, has a mean of 45.1. according to the average, it can be said to be quite high considering that the point ranges are between 12 and 60. Accordingly, it can be said that the teacher candidates ' perceptions of self-sufficiency for use of technology in education in terms of both total points and factors are high enough. The findings on whether the levels of self-efficacy perception of teachers' acceptance and use of technology in education differ according to departments are summarized in Table 4.

Table 4. Acceptance and use of technology in education self-efficacy perception levels of teacher candidates according to departments

Variables		N	X	Sd.
Technology Acceptance Level	CEIT	68	158,1	17,8
	Math	122	134,3	18,6
	Science	90	141,2	24,1
	Total	280	142,3	22,3
Perception of Self-Efficacy-Belief	CEIT	68	73,6	6,3
	Math	122	62,5	9,6
	Science	90	64,8	12,2
	Total	280	65,9	10,8
Perception of Self-efficacy- Impact on Undergraduate Programs	CEIT	68	50,5	7,6
	Math	122	41,5	8,3
	Science	90	45,9	8,1
	Total	280	45,1	8,8
Perception of Self-Efficacy-Total Score	CEIT	68	124,2	11,6
	Math	122	103,9	14,9
	Science	90	110,7	19,4
	Total	280	111,1	17,7

When we examined the technology acceptance levels in Table 4, teacher candidates who are enrolled in the CEIT technology acceptance is higher compared to other departments, with the lowest score, it is observed that teacher candidates who belong to the Math Department is enrolled in. When the perceptions of self-efficacy for the use of technology in education are examined, it is observed that the highest means score is similarly in CEIT and the lowest average is Math Department. Table 5 summarizes the analyses, if these differences are significant.

Table 5. Acceptance and use of technology in education of teacher candidate's self-efficacy perception levels difference according to departments

Variables		Sum of Squares	df	Mean Square	F	p	Tukey
Technology Acceptance Level	Between Groups	24867,4	2	12433,7	30,12	,000	Between CEIT and Sci and Math
	Within Groups	114345,7	277	412,8			
	Total	139213,1	279				
Perception of Self-Efficacy-Belief	Between Groups	5579,7	2	2789,8	28,65	,000	Between CEIT and Sci and Math
	Within Groups	26973,1	277	97,4			
	Total	32552,8	279				
Perception of Self-efficacy- Impact on Undergraduate Programs	Between Groups	3682,7	2	1841,4	28,26	,000	Between CEIT and Sci and Math
	Within Groups	18047,7	277	65,2			
	Total	21730,4	279				
Perception of Self-Efficacy-Total Score	Between Groups	17840,9	2	8920,4	35,65	,000	Between CEIT and Sci and Math
	Within Groups	69305,1	277	250,2			
	Total	87146,0	279				

When Table 5 is examined, it is observed that there is a significant difference between the levels of acceptance of technology in education of the teacher candidates according to the department [F(2-277)=30,12, p<0.05]. According to the results of the Tukey test, differentiation was determined to be present between all three sections. When examined Table 3, it can be seen CEIT Department' average is significantly higher then Math and Science Education departments, also Science Education Department' average is significantly higher than Match Department.

When Table 5 is examined, it is observed that there is a significant difference between the perceptions of self-efficacy in the use of technology in education of teacher candidates according to departments [F(2-277)=35,65, p<0.05]. According to the results of the Tukey test, differentiation was determined to be present between all three departments. Factors examined in terms of the perception scores of teacher candidates and the use of technology in education self efficacy and self-competency beliefs [F(2-277)=28,65, p<0.05], both undergraduate effect [F(2-277)=28,26, p<0.05] significantly differentiation is observed. According to the averages, self-efficacy perceptions of CEIT department are significantly higher than those of the Department of Mathematics and Science Education. Furthermore, it is observed that the level of acceptance of technology in education of the Science Education Department is significantly higher than that of the mathematics education department. The findings on whether the levels of self-sufficiency of teachers' acceptance and use of technology in education differ according to gender are summarized in Table 6.

Table 6. Acceptance and use of technology in education self-efficacy perception levels of teacher candidates according to gender

Variables		N	X	sd	t	df	p
Technology Acceptance Level	Female	197	141,5	21,3	-0.898		0.370
	Male	83	144,1	24,7			
Perception Of Self-efficacy-Belief	Female	197	65,6	10,5	-0.622		0.534
	Male	83	66,5	11,4			
Perception of Self-efficacy-Impact on Undergraduate Programs	Female	197	44,8	9,1		278	
	Male	83	45,7	8,4	-0.741		0.459
Perception of Self-Efficacy-Total Score	Female	197	110,5	17,4	-0.750		0.454
	Male	83	112,2	18,4			

When Table 6 examined, both the level of acceptance of technology in education (t(2-278)=-0.898, p>0.05) and perceptions of self-efficacy in the use of technology in education of teacher candidates (t(2-278)=-0,750, p>0.05) are not different according to gender. The situation is similar in terms of factors. Accordingly, it can be said that the gender factor does not affect the acceptance levels of technology in education and the perception levels of self-efficacy for the use of technology in education. The findings on whether the levels of self-sufficiency of teachers' acceptance and use of technology in education differ according to grade levels are summarized in Table 7.

Table 7. Acceptance and use of technology in education self-efficacy perception levels of teacher candidates according to grade levels

Variables		N	X	Sd
Technology Acceptance Level	1.Grade	22	134,3	12,3
	2. Grade	50	139,1	18,4
	3. Grade	103	138,7	27,3
	4. Grade	105	149,0	18,5
	Total	280	142,3	22,
Perception of Self-Efficacy-Belief	1.Grade	22	63,0	8,7
	2. Grade	50	62,7	10,5
	3. Grade	103	64,8	12,9
	4. Grade	105	69,1	7,9
	Total	280	65,9	10,8
Perception of Self-efficacy- Impact on Undergraduate Programs	1.Grade	22	42,7	6,5
	2. Grade	50	43,0	7,4
	3. Grade	103	45,2	9,6
	4. Grade	105	46,5	8,9
	Total	280	45,1	8,8
Perception of Self-Efficacy-Total Score	1.Grade	22	105,7	13,7
	2. Grade	50	105,7	16,4
	3. Grade	103	110,0	21,1
	4. Grade	105	115,6	14,1
	Total	280	111,0	17,7

When Table 7 is examined, the highest technology acceptance levels mean is belong to 4th grade teacher candidates, the lovest mean is belong to first grades. The situation is similar when the perceptions of self-efficacy perception of technology in using education are examined. Table 8 summarizes the analyses to see if these differences are significant.

Table 8. Acceptance and use of technology in education of teacher candidate's self-sufficiency perception levels difference according to grades

Variables		Sum of Squares	df	Mean Square	F	p	Tukey
Technology Acceptanca Level	Between Groups	7975,9	3	2658,6	5,591	,001	Between 4. And 2., 3. Grade
	Within Groups	131237,3	276	475,5			
	Total	139213,1	279				
Perception of Self-Efficacy-Belief	Between Groups	1858,2	3	619,4	5,570	,001	Between 4. And 2., 3. Grade
	Within Groups	30694,5	276	111,2			
	Total	32552,8	279				
Perception of Self-efficacy- Impact on Undergraduate Programs	Between Groups	568,052	3	189,4	2,470	,062	-
	Within Groups	21162,344	276	76,7			
	Total	21730,4	279				
Perception of Self-Efficacy-Total Score	Between Groups	4348,8	3	1449,6	4,8	,003	Between 2. And 4. Grade
	Within Groups	82797,2	276	300,0			
	Total	87146,0	279				

When Table 8 is examined, it is observed that there are significant differences between the levels of acceptance of technology in education of teacher candidates according to classes [F(3-276)=5,529, p<0.05]. According to the results of the Tukey test, the differentiation was

determined between the teacher candidates studying in 4. grade and the teacher candidates studying in 2. and 3. grades. When the averages in Table 6 are examined, it is seen that the acceptance levels of technology in education are significantly higher for the teacher candidates who are studying in the 4. grade. Accordingly, it can be said that the level of acceptance of technology increases as the class degree increases.

When Table 8 is examined, it is observed that there is a significant difference between the self-efficacy perception towards using technology in education of teacher candidates according to grades [$F_{(3-276)}=4,832$, $p<0.05$]. According to the results of the Tukey test, it was determined that the differentiation was between the teacher candidates who were studying in the 2. grade and 4. grade. From the point of view of the factors, it is observed that there is significant differentiation in the factor of belief [$F_{(3-276)}=5,570$, $p<0.05$]. When the means in Table 6 are examined, it is seen that the difference is in 4. grade. Accordingly, as the grade degree increases, perceptions of self-efficacy towards use of technology in education can be said to increase. The findings regarding the relationship between the self-efficacy and use of technology in education are summarized in Table 9.

Table 9. Relationship between acceptance of technology in education and self-efficacy perception of use of Technology in education

	Perception of Self-Efficacy-Belief	Perception of Self-efficacy- Impact on Undergraduate Programs	Perception of Self-Efficacy-Total Score
Technology Acceptance Level	,775	,654	,800
	,000	,000	,000
	280	280	280

When Table 9 are examined, it can be seen significant corelation between levels of acceptance of technology in education and self-efficacy perception towards using technology in education of teacher candidates (r=0,800; p<0.001). There is also significant correlation on belief (r=0,775; p<0.001) and the impact of the undergraduate programs (R=0,654; p<0.001) factors. Accordingly, it can be said that as the levels of self-efficacy perception towards using technology in education increase, the levels of acceptance of technology in education also increase. The effect of self-efficacy perception level on acceptance level of technology is summarized in Table 10.

Table 10. Effect of self-efficacy perception level on technology acceptance level

	Cons.	Std. Error	t	p	Relation Part	Partial
Constance	28,192	5,092	5,536	,000		
Perception of Self-Efficacy-Belief	1,242	,093	13,281	,000	,624	,472
Perception of Self-efficacy-Impact on Undergraduate Programs	,715	,114	6,252	,000	,352	,222

Technology acceptance level = 28.192 + 1.242 (Perception of Self-efficacy - Belief) + 0,715 (Perception of Self-efficacy- Impact on Undergraduate Programs); R^2 =0.65

When Table 10 is examined, it is observed that teacher candidates ' acceptance level of technology in education, its effect belief and undergraduate program all together affect 65% of the total variance.

Teacher candidates ' views on the impact of technology on education

In all the interviews, the concept of technology, the direction of facilitating our lives was expressed by the candidates of teachers. The areas of use of the technology are listed as health, transportation, industry, economics and space science, education.

When the impact of technology on education is taken into consideration, it is observed that the teacher candidates often focus on the benefits provided by the lesson. The teacher candidates' views that the use of technology in education saves both the teacher and the student time, provides immediate access to the desired information and facilitates both teaching and learning are noted. The views of ÖA3 and ÖA2 regarding this are given below:

ÖA3: I think the benefits for the teacher are saving time, less effort and easier communication with the parents of the students. To be effective in providing students with the opportunity to repeat the lesson and practice in order to keep the knowledge transferred.…

ÖA2: The use of technology can be addressed to all students by eliminating individual differences and combining different learning styles.

When the distraction outside of the benefit stated in the opinion, the effect of the reduction of the teacher in the lesson, being unable to technology innovation, technological development and new technology such as negative thoughts of individuals well acquainted with difficulties in the adaptation process is located at. The views of ÖA5 and ÖA7 regarding this are given below:

ÖA5: To give an example from my own life, the understanding process of the students who have been in contact with technology for a very small amount of time during their life is somewhat distressed according to their other friends.

ÖA7: A lesson based entirely on technological means reduces the impact on the teacher, and at that time, the student becomes disconnected and distracted from the teacher.

Another issue emphasized by the teacher candidates is that the use of technology in education will contribute if it is used in the right place and time. The views of the ÖA8 regarding this are given below:

ÖA8: ... of course I think positive things about the use of technology, but they should be used at the right time and in the right place. I mean, if technology doesn't help me any more, it's not going to give the student any extra attention, it's going to cause a distraction. In other words, if I am going to give an example, I can explain a topic and a topic I'm describing, technology does not offer better opportunities here, I do not need to benefit from technology.

The other issue that the teacher candidates are twirling about is the increase in interest in the lessons handled with technology and the efficient passing of the courses. They also mentioned that it reduces the Individual Differences found among students during the learning phase. The views of ÖA2 and ÖA3 regarding this are given below:

ÖA2: By combining different learning styles with technology by eliminating these individual differences, all students can be addressed by teacher

ÖA3: Since it helps all sensory organs to work together by activating almost all of them, it makes it more interesting and interesting.

How do teacher candidates think to use technology in their professional lives?

When the teacher candidates' views on how to use technology in their professional lives are examined, it is seen that they express that they will use technology to enrich the teaching and improve themselves in order to make it more useful to their students. The views of ÖA1 and ÖA7 regarding this are given below:

ÖA1: I definitely use technology only for my students. Of course, to improve myself, I want to be able to give my students the maximum level of Education.

ÖA7: I intend to use technology to improve the quality of the educational services I provide to students in the future when I am a professional and to facilitate my daily life and to save time.

In terms of using technology, the candidates of teachers who are studying in Science Education and CEIT Departments, feel the need to use technology in education. However, some of the teachers in the Department of Mathematics Education think that the use of technology in education does not need much in some areas. The views of ÖA4 and ÖA7 regarding this are given below:

ÖA7: in our department, our job is to do a little bit more in a concrete way with pen and paper. Well, that's not possible on a computer either.

ÖA4: our department is very, very unnecessary. Since it is more of a numerical course, we can only reflect the questions.

Disscussion and Conclusion

Teacher candidates generally have high enough levels of acceptance of technology. The self-efficacy perceptions using technology in education in terms of both total points and factors are also seen to be high enough. When literature exemind, it was determined that the teachers developed a positive attitude towards technology and considered themselves to have a moderate level of proficiency in using technology (Öztürk, 2006; Çetin, Çalışkan and Menzi, 2012). Similarly, in the studies conducted by Tınmaz (2004) and Toker (2004) with the teacher candidates, the results were reached that the teacher candidates considered themselves sufficient in the use of technology.

The level of acceptance of technology in education of the teacher candidates who are studying in CEIT department is higher than in other departments. In addition, the teacher candidates who are studying in the Department of Science Education have higher acceptance levels of technology than the Department of Mathematics Education. An extensive study by Ursavaş, Şahin and Mcilroy (2014) on the technology acceptance levels of teacher candidates concluded that the difference in technology acceptance levels between branches stems from the technological expectations and attitudes of teacher candidates towards technology. Results from qualitative data support this judgment. In terms of using technology, the teacher candidates who are studying in CEIT department and Science Education department,

feel the need to use technology in education. However, some of the teachers in the Department of Mathematics Education think that the use of technology in education does not need much in some areas. Baki, Yalçinkaya, Özpınar and Uzun (2009) conducted a study with Primary Mathematics teachers and teacher candidates and suggested that teacher candidates and teachers should be raised awareness within the framework of instructional technology.

The self-efficacy perceptions towards use of technology in education of teacher candidates who are studying in the CEIT Department are higher than other departments. The candidates who are studying in the Department of Science Education are also higher than the teacher candidates who are studying in the Department of mathematics education. In terms of factors, it is observed that there are significant differences in the use of technology in education perception scores of teacher candidates in terms of both belief in self-sufficiency and its effect on the undergraduate program. When literatur examined, , it can be concluded that this differentiation varies between the groups in which the study was conducted. In a study conducted by Usta ve Korkmaz (2010) with the teacher candeidates in Primary Educatyion Departmen Social Science Department, it was concluded that their beliefs were high in terms of factors, but these belief scores did not differ in terms of departments. In addition, research on the positive contribution of technology to education is found in the literature (Yilmaz, Ulucan, Pehlivan, 2010; Yavuz, Coşkun, 2008; Karaoğlan Yilmaz, Binay Eyuboğlu, 2018; Inel, Evrekli, Balim, 2011).

The levels of acceptance of technology in education and self-efficacy perception of using technology in education do not differ in terms of gender. It is possible to find many studies on gender variables in the field. It is possible to find conclusions about the lack of effect of gender on self-efficacy levels (Yilmaz, Gerçek, Köseoğlu, Soran, 2006; Şad, Nalçali, 2015). However, in a study conducted by Ipek and Acuner (2011) with teacher candidates in Primary Education Department, male teacher candidates had higher score in computer self-efficacy beliefs than female teacher candidates. Similar results were reached in another study by Tekinarslan (2008). Besides, there are also studies in which women's perceptions of self-efficacy are high (Erdemir, Bakirci, Eyduran, 2009).

The technology acceptance levels of the teacher candidates in the fourth grade are higher than those of the teacher candidates in the second and third grades. The level of acceptance of technology increases as the class degree of teacher candidates' increases. When the self-efficacy perceptions are taken into consideration, the self-efficacy perceptions are higher in the fourth grade than in the second grade. In the same way, it is concluded that the higher the grade of teacher candidates, the higher their self-efficacy perceptions in using technology. Similarly, studies conducted with teachers and teachers show that with the increase in classroom level and experience in the profession, technology orientation and technological competence increase (Russell, Bebell, O'dwyer, O'connor, 2003; Çetin, Çalışkan, Menzi, 2012; Akın, Baştuğ, 2005). A study by Howard, Raina, Jones (2001) concluded that with the increase in age, attitudes towards technology, technological competence and use of technology showed a decrease.

There is a high level of positive correlation between the levels of self-sefficacy perception of teacher candidates to technology acceptance levels. As the levels of self-efficacy perceptions using technology in education increase, the levels of acceptance of technology in education also increase. The level of self-efficacy perception and acceptance of technology affects 64% of the total variance. In a study conducted by Ipek and Acuner (2011) with teacher candidates in Primary Edcuation Departmen, it was stated that computer self-efficacy belief levels of teacher candidates can be seen by looking at attitudes to technology use in education. Another study on computer self-efficacy perceptions of teacher candidates concluded that while computer self-efficacy perception increased, attitudes towards computer education increased also (Yenice, Özden, 2015). There are studies that there is no significant relationship between computer attitude and computer self-efficacy perception (Zhang, Espinoza,1998, Aktaran Yenice & Özden, 2015).

When the impact of technology on education is taken into consideration as a result of the interviews with the teacher candidates, the teacher candidates often focus on the benefits provided by the lesso. The use of technology in education reduces individual differences. A study conducted with teachers in the literature found that the use of technology in education benefits teaching (Yeşilyurt, 2006). Contributions to technology in education, teacher candidates, in addition to the distraction, the effect of the reduction of the teacher in the lesson, being unable to technology innovation, technological development and new technology gave individuals acquainted with difficulties in the adaptation process such as negative thoughts. Similar to this conclusion, a study on teachers in the literature found that teachers have incomplete aspects in using information and communication technologies and even the level of computer use is very low (Kayaduman, Sarıkaya & Seferoğlu, 2011).

Technology in education differs in its impact on education according to where and when it is used. Otherwise, it is seen that the use of technology in education can lead to negative consequences. 8 who are studying in private and public schools in the literature. In a study conducted with the students of the class, it was concluded that there were significant differences in the use of technology in science (Akpınar, Aktamış & Ergin, 2005).

In all interviews with the teacher candidates, it is observed that the views stated on how to use technology in their professional lives are to give the student a better education by enriching the teaching in the infrastructure and improving themselves. This shows that prospective teachers, who are stakeholders of the future, have a structure that is open to development.

Suggestions

- In order to increase the self-efficacy perception and technology acceptance levels, it may be suggested to include practical activity content related to technology use within the courses at the first and second grade levels.
- In order to increase the self-efficacy perception and technology acceptance levels, it may be suggested to include practical activity content related to technology use within the courses at Mathematics Education Department.

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