



The Relationship between Self-Efficacy Beliefs of Teacher Candidates and Their Attitudes about Computer-Assisted Instruction¹

Research Article

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ABSTRACT

The aim of this study is to determine preschool teacher candidates' self-efficacy belief levels and their attitudes about computer-assisted instruction as well as to determine the relationship between those two notions. In this study the preferred method was the mixed method where both quantitative and qualitative data is used conjointly. The data in the quantitative dimension of the study were collected with "Preschool Teachers' Self-Efficacy Beliefs Scale" developed by Tepe and Demir (2011) and "Computer-Assisted Instruction Attitude Scale", developed by Arslan (2006). The data in the qualitative dimension of the study were collected through an interview form developed by the researchers. Quantitative data were analyzed by a statistics software program and qualitative data were construed by descriptive analysis. The population of the research consisted of teacher candidates who are studying in the Preschool Education departments of Firat, Cumhuriyet, Amasya, Adıyaman, Ahi Evran, and Dicle Universities in the 2017-2018 academic year. In this context, assessments were one regarding several variable. Accordingly, female teacher candidates' self-efficacy levels, and their attitudes about computer-assisted instruction are determined to be higher, significant difference is ascertained in favor of teacher candidates who are in their senior years and who own their own personal computers. In addition, a low-level significant correlation in the positive direction was found between the teacher candidates' self-efficacy levels and their attitudes about computer-assisted instruction.

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Keywords:

Computer-assisted instruction, preschool teacher candidate, self-efficacy, attitude.

Introduction

Passing down social culture from generation to generation is the most important factor for the existence of any society. On the other hand, the most important factors in passing down the culture are family and the

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environment. In addition to the importance of the factor of the environment in providing a good and decent education, the guidance given to the child is as equally important (Yoldaş, Yetim & Küçüköğlü, 2016). In an individual's life, education begins in the family and continues with the schooling period. The education given in schools is especially important in the development process of individuals. Teachers provide the training given to individuals during this development process. Teachers have many important features in the education and the training processes (Göktaş & Yetim, 2004). One of these features is to possess the belief which progresses consistently with the achievements of their students and which affects the performance and motivation of their pupil in the classroom; in other words, having in them the belief of self-efficacy (Ashton, 1984).

Self-efficacy is the belief that an individual possesses the necessary knowledge and skills to perform a task successfully. Self-efficacy beliefs affect one's behavior. In reality, the human behavior is based on people's beliefs in what is right, rather than what needs to be right (Kurbanoglu, 2004). Self-efficacy belief affects what people think about themselves, how they feel, how they are motivated when they encounter situations, and how they should behave in the face of events (Bandura, 1995). Özenoğlu-Kiremit (2006), for the concept of self-efficacy belief, said that, it is the expectations of the people, which affect the goals they have determined throughout their lives and the performance and efforts they would expend to achieve these goals related to themselves. Akkoyunlu, Orhan & Umay (2005) mentioned that self-efficacy is not related to how much the individuals have command on their skills in their fields of expertise, but rather their beliefs in their own skills and emphasized that self-efficacy is the belief in how people feel about themselves, what they think, how they drive themselves, and how they behave before the incidents they encounter. Self-efficacy is the belief of the people that they embody the abilities to accomplish the tasks assigned to them. People can predict the outcome of an event by looking at their past experiences or by observing the lives of other individuals. If the predicted results are in the more positive direction and this situation is something that would yield benefit, the motivation takes place. The behavior of people is directed, at a significant rate, through the results of their previous behaviors (Sapançı, 2010).

In the Social Cognitive Theory of Bandura, it is stated that the self-efficacy perception of the individual is fed from four sources (Aşkar & Umay, 2001; Büyükduman, 2006; Özata, 2007). These sources are listed as the performance success of the individual, indirect experiences, verbal persuasion and emotional state. While the success achieved by the people in the tasks they have previously undertaken to become an indicator for their next tasks can be expressed as the performance success, the belief developed by people by observing other people who face difficult problems like their own have coped with these situations, that they have the same set of skills is expressed as the indirect experience. While the suggestions people received from others to help them overcome an incident are expressed as verbal persuasion, the ability to control fear, anxiety and stress levels to assess their own self-efficacy is expressed as emotional state.

Looking at these four sources that constitute self-efficacy, it is observed that the performance successes of individuals are the most effective source of information of competency, and it depends on the individual's own learning experiences. Previous successes achieved by individuals increase their expectations of learning and successive failures encountered decrease both their learning expectations and the process of learning overall. As a result, it is seen that these experiences give important clues in order to increase the success of individuals in their school lives.

Self-efficacy belief is a concept that defines individuals' belief that they can perform a contemplated task. This belief being in a positive or negative level affects motivation. Motivation is an element that facilitates students to have more active and long-term participation in assignments that lead learning to a more advanced level. In this respect, motivation is in critical nature in regards to the knowledge, skills and abilities of the individuals (Kotaman, 2008). According to Özenoğlu-Kiremit (2006), if the self-efficacy beliefs of the

individuals are high, they do the work given to them wholeheartedly. In this context, self-efficacy beliefs that the individuals possess can be clearly observed in their overall behavior.

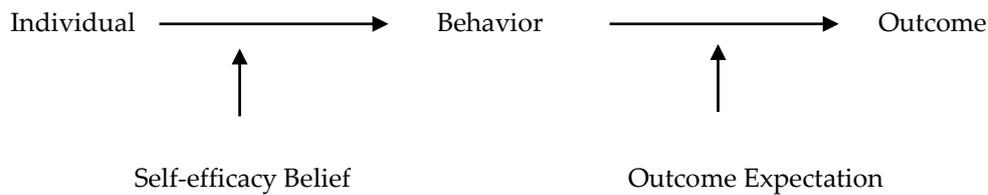


Figure 1. The relationship between individual, behavior and outcome process, with self-efficacy belief and outcome expectation (Bandura, 1977).

As shown in Figure 1, self-efficacy belief and outcome expectation are completely different structures. While self-efficacy belief is effective in determining how an individual can behave; outcome expectancy demonstrates what kind of consequences an action that an individual had taken may result in.

The concept of self-efficacy is also important in the process of the teacher training. The knowledge and skills they have absorbed during their education processes are effective in increasing self-efficacy. Teachers gain the knowledge and skills they will use in their professional lives during their undergraduate education. One of the most important factors that determine the quality of teacher training is the structure and content of the education that the teacher candidates receive. In this context, individuals who are high-qualified, well-educated and adaptable to the developing technology are needed to be employed as teachers. One of the most important elements of rapidly developing technology is undoubtedly the computer. Computers demonstrate their effectiveness in many areas of life. The use of computers in the field of education has taken the education system under its influence in some ways. The process of teaching and training has become easier with the help of computers. Teachers, when establishing permanent behavior on students, benefit widely from computers.

Teaching and learning activities, which are the main components of education, are very important in the process of raising individuals. The success of the education objectives and the effective implementation of the teaching and training processes depend to a large extent on the educators, on the materials they use in the teaching environment (all tools and gadgets), and the methods and techniques that they employed. Education, which is one of the most important processes in the life of the individual, should keep up with the advanced technology in order to meet the needs of life. The use of computer in education is one of the biggest and effective steps for this purpose (Kacar & Doğan, 2007). The reason why computers are one of the most effective educational tools that can be used in the education process is that computers incorporate superior features within themselves such as effectiveness, integrality, continuity, usefulness, multi-purpose usage availability, high speed, reliability, and bilateral interaction (Çetin, 2007).

It would not be incorrect to say that the most obvious reflection of the technology used to elevate the quality of education is the utilization of computers. With the purpose to support education, the computer can be used in a variety of settings, such as in-class or out-of-class, in presentations, in conducting research, in preparing reports/assignments, and in many more different situations (Yıldırım & Kaban, 2010). With the abundance of knowledge to be taught to individuals, the complexity of the content of this information, the increase in the number of students and the demand for education, the inadequate number of teachers and the importance of individuality in education coming to the forefront in recent years, the use of computers in education has gained significant importance (Keser, 1988).

Traditional methods of communicating information to people are not sufficient enough today (Kayaduman, Sarıkaya & Seferoğlu, 2011). In this context, the role of technology in education, especially in pre-school education, is an undeniable fact. Because visual and audio tools are used actively in order to attract

the attention of students whom are in their preoperational stages. At the start of the preschool period of children, undoubtedly computers take the first place among technological equipment used. For the game-oriented thinking children as a requirement of their ages, the importance of computers is quite significant. Because it would not be incorrect to say that the computer has a greater patience when it is compared to a person and that it has a quality which is ready to play at any time. Therefore, it can be said that the computer has a significantly large capacity to entertain the child. Additionally, it can also be thought that computers play a role in facilitating the concrete-abstract balance in the minds of the children. Through computers, children can establish a connection in what they learn concretely with abstract situations (Arı & Bayhan, 2003).

Computers have many outstanding features beneficial for the education system. Uşun (2013) listed these features as follows:

- Computers;
 - are interactive training tools; students learn to use their self-control skills with the aid of computers.
 - have high levels of flexibility; they are effective reinforcers; they have unlimited patience.
 - can be generalized as a blackboard and a textbook; they can operate all properly prepared programs.
 - can make the education fun and interesting by allowing for many different changes to be incorporated in the software.
 - can be used in teaching both to individuals and to groups.
 - can facilitate the implementation of the principles required by the programmed instruction.
 - are qualified examiners which can record the answers to the questions asked and retrieve the results at any time.

In order for teachers and teacher candidates to be able to catch up with the changes in educational and training endeavors, and to keep up with them, they must first accept the change themselves, and also should be interested in developments in the field of computer technology. In this context, before they start their teaching profession it is necessary to investigate the information technologies-related attitudes of the teachers, who will be guiding the children to acquire the targeted knowledge and desired skills. Attitudes and behaviors of teachers to the computer will be effective in the ability of using the computer in their future education lives (Çelik & Bindak, 2005). Because, with the help of computer-assisted instruction (CAI) the possibility of teaching a lesson visually is higher, CAI can be used as a very effective method in the classrooms.

On the other hand, in addition to visual education in the CAI, since there are subjects that are told by the teachers, this fact also supports the auditory learning. Considering these characteristics of CAI, it is important to know the attitudes of the teachers regarding computer-assisted instruction. In this context, the aim of this study is to determine the level of preschool teacher candidates' self-efficacy beliefs and their attitudes towards giving computer-assisted instruction as well as to determine the relationship between those two notions. In line with those general purpose, answers to the following questions were sought:

1.
 - Were preschool teacher candidates' self-efficacy beliefs show significant differences in terms of gender and grade level variables?
 - Were preschool teacher candidates' behaviors for giving computer-assisted instruction show significant differences in terms of gender, grade level, having their own personal computers, having their own internet connections, the frequency of using the computer during the day variables?
 - What is the level of the relationship between the preschool teacher candidates' self-efficacy beliefs and their behaviors about computer-assisted instruction?

2. What are the opinions of the preschool teacher candidates' regarding;
 - finding themselves adequate in the profession they will perform in the future,
 - the importance of having the skills of using computers in the profession they will perform in the future,
 - the level of proficiency in the point of preparing and implementing activities for the students by using the computer,
 - computer-assisted instruction lessons-activities,
 - the activities they do/participate in to improve themselves?

Method

Research Model

In this study, the preferred method was the mixed method where both quantitative and qualitative data was used conjointly. A mixed method is a research method that involves collecting, analyzing, and combining qualitative and quantitative data together or sequentially (Creswell, Plano-Clark, Gutmann & Hanson, 2003). The mixed method is an attempt to extract something new, independent by collecting the numbers using the quantitative method and collecting words by using the qualitative method (Creswell & Plano-Clark, 2011). The study adopted a convergent parallel design, one of the mixed type research methods

Determining the relationship between the self-efficacy beliefs and the attitudes of the teacher in terms of computer-assisted instruction shows that the research is in the correlational survey model. The correlational survey model is a research model that aims to reveal the presence and / or degree of interchange between two or more variables (Karasar, 2016). In the qualitative dimension of the study, the case study was used. The case study is preferred when it is necessary to put forward a holistic approach to the environment, individuals, events and processes related to a situation (Yıldırım & Şimşek, 2016).

Study Group

The population of the research consisted of the teacher candidates who are studying in the Preschool Education departments of Fırat, Cumhuriyet, Amasya, Adıyaman, Ahi Evran, and Dicle Universities in the 2017-2018 academic year and who have participated in the research voluntarily. The incidental sampling method was used when the sample was being determined. The incidental sampling method is the selection of the sample from easily accessible and readily applicable units due to limitations in time, money and labor (Büyüköztürk, Kılıç, Çakmak, Akgün, Karadeniz & Demirel, 2009). In this context, 615 junior and senior students who are currently enrolled in the Preschool Education departments of Fırat, Cumhuriyet, Amasya, Adıyaman, Ahi Evran, Dicle Universities are included in the research.

In the qualitative dimension of the research, the volunteering of the participants was taken as the basis. Specifically, a classification was made related to the *convenience sampling* which is considered among the purposeful sampling forms. Convenience sampling can be explained as the researchers choosing the situation that is close and easily accessible to them (Yıldırım & Şimşek, 2016). For this reason, 10 students from each of the universities in the research process were identified during the interview process. The interview forms were hand delivered to the students who were identified and were collected by hand from the students after they were completed by them. Six of the 60 forms completed by the students were considered invalid because they were not filled properly and over the 54 forms considered valid analyses were conducted.

Data Collection Tools

When collecting the quantitative data of the study, "Preschool Teachers Self-Efficacy Beliefs Scale" developed by Tepe & Demir (2011) and consisted of 37 articles was employed; whereas when collecting the

qualitative data of the study “Computer-Assisted Instruction Attitude Scale” developed by Arslan (2006) and consisted of 20 articles was benefited from. The data in the dimension were collected through an interview form developed by the researchers. Quantitative data were analyzed by statistical program and qualitative data were construed by descriptive analysis. The Cronbach alpha reliability coefficient of the self-efficacy scale is .97. In the present study, the Cronbach’s alpha reliability coefficient was found to be .96. The Cronbach’s alpha reliability coefficient of the attitude scale is .93. In the current study, Cronbach’s alpha reliability coefficient was found to be .91. In order to collect the data in the qualitative dimension of the research, an interview form developed by the researchers was used.

Analysis of the Data

The analysis of the study related to its quantitative dimension was carried out with statistical software program. In the study, t-test, one-way anova, LSD, and correlation tests were used. The qualitative data obtained during the study period were construed by descriptive analysis. Descriptive analysis is performed to clarify a situation, to make evaluations, to disclose possible connections between incidents and to explain the situation being examined (Çepni, 2007). In order for the research to be accepted scientifically, the results of the research process must be clear, consistent and verifiable by other researchers. In this respect, the data obtained were analyzed by two researchers to ensure the validity and reliability of the research (Yıldırım & Şimşek, 2016). In addition, direct quotations from the sentences of teacher candidates have been made in order to support the analyzes and findings, and these are presented in the “Findings” chapter.

Findings

Table 1. Descriptive statistics of the teacher candidates

		f	%
Gender	Female	513	83.41
	Male	102	16.59
Grade level	Junior	317	51.54
	Senior	298	48.46

Table 1 contains the personal information of teacher candidates. When the information is examined, it is observed that 513 of the teacher candidates are female and 102 of them are male. 317 of these 615 teacher candidates are junior year, 298 of them are senior year students.

Results on Quantitative Dimension

In this section, where the quantitative data was analyzed, analysis of the data collected by “Preschool teachers’ self-efficacy beliefs scale” and “Computer-assisted instruction attitude scale” are discussed. First of all, tests have been conducted according to the variables related to the scale, and these are presented as a table.

Table 2. Results of the t-test of preschool teacher candidates’ self-efficacy beliefs which are assessed according to the gender variable

Gender	n	\bar{X}	sd	df	t	p
Female	513	3.99	.50	613	2.408*	.016
Male	102	3.86	.51			

According to the findings obtained from the t-test to determine self-efficacy belief levels of preschool teacher candidates according to the gender variable, it was found that teacher candidates’ self-efficacy belief levels differ significantly according to their gender ($t(613)=2.408, p<.05$). Regarding the fact that female teacher candidates’ self-efficacy belief scores ($\bar{X} = 3.99$) are higher than the male teacher candidates’ self-efficacy belief

scores ($\bar{X} = 3.86$), this difference can be said to be in favor of women. According to this, it can be stated that the female teacher candidates find themselves more competent than the male teacher candidates. In addition to this, self-efficacy belief levels of the female and male teachers correspond to the "very" range of the scale. When expressed in another term, it can be said that the teacher candidates within the scope of the research have an upper intermediate level of self-efficacy belief level.

Table 3. Results of the t-test of preschool teacher candidates' self-efficacy beliefs which are assessed according to grade level

Grade	n	\bar{X}	sd	df	t	p
Junior	317	3.94	.52	613	-1.719	.086
Senior	298	4.00	.49			

In Table 3, the t-test results of preschool teacher candidates' self-efficacy belief levels compared according to the grade level are presented. According to the findings obtained, teacher candidates' self-efficacy belief levels were not differentiated ($t(613)=-1.719$, $p>.05$). Junior and senior year teacher candidates' self-efficacy belief levels correspond to the "very" range of the scale. In other words, it can be said that the teacher candidates within the scope of the research have an upper intermediate level of self-efficacy belief level.

Table 4. Results of the t-test of preschool teacher candidates' attitudes towards giving computer- assisted instruction which are assessed according to the gender variable

Gender	n	\bar{X}	sd	df	t	p
Female	513	3.62	0.58	613	1.639	.102
Male	102	3.51	0.69			

When Table 4 is examined, it is observed that the attitudes towards computer- assisted instruction of the teacher candidates under the scope of the research are compared according to the gender variable. As a result of the t-test, there was no statistically significant difference found between the attitude score ($\bar{X} = 3.62$) of the female teacher candidates and the attitude score ($\bar{X} = 3.51$) of the male teacher candidates ($t(613)=1.639$, $p>.05$). In addition, the average of attitudes towards computer- assisted instruction of both female and male teacher candidates corresponds to the "agree" range of the scale. In other words, it is determined that teacher candidates have an upper intermediate level of attitude towards giving computer-assisted education attitude.

Table 5. Results of the t-test of preschool teacher candidates' attitudes towards computer- assisted instruction which are assessed according to the grade level variable

Grade level	n	\bar{X}	sd	df	t	p
Junior	317	3.53	.57	613	-2.872*	.004
Senior	298	3.67	.63			

When the results of the t-test conducted to determine whether or not the attitudes of preschool teacher candidates towards computer- assisted instruction vary according to the variable of the level of the year studied, differ significantly according to the grade level variable, teacher candidates' attitudes towards computer- assisted instruction differ significantly according to the variable of grade level ($t(613)=-2.872$, $p<.05$). This difference is in favor of students in their senior year because the teacher candidates' average who are studying in the senior year has a higher attitude average ($\bar{X} = 3.67$) on computer- assisted instruction than the teacher candidates' averages who are studying in the junior year ($\bar{X} = 3.53$). In addition, the average of attitudes towards computer- assisted instruction of teacher candidates, who continue their education in junior

and senior years, corresponds to the “agree” range of the scale. In other words, it is determined that teacher candidates have an upper intermediate level of attitude towards CAI.

Table 6. Results of the t-test of preschool teacher candidates’ attitudes towards computer- assisted instruction which are assessed according to the owning computer variable

Own computer	n	\bar{X}	sd	df	t	p
Yes	427	3.64	.60	613	2.166*	.031
No	188	3.52	.61			

T-test was used, to evaluate the attitudes of preschool teacher candidates, towards computer- assisted instruction, according to whether or not if the teacher candidates have their own computers. According to the results obtained from the t-test analysis, the teacher candidates’ attitudes towards computer- assisted instruction were statistically different according to the owning computer variable ($t(613)=2.166$, $p<.05$). It can be said that teacher candidates who have their own computers ($\bar{X}=3.64$) have a higher level of attitude towards computer- assisted instruction, compared to teacher candidates who do not own their own computers ($\bar{X}=3.52$). For their attitudes towards computer- assisted instruction, it is determined that teacher candidates who own or do not own their own computers have expressed an opinion which would correspond to the “agree” range of the scale.

Table 7. Results of the t-test of preschool teacher candidates’ attitudes towards computer- assisted instruction which are assessed according to owning internet connection variable

Own internet connection	n	\bar{X}	sd	df	t	p
Yes	419	3.61	.61	613	.602	.547
No	196	3.58	.58			

The t-test was used to determine whether or not the attitudes of preschool teacher candidates’ towards computer- assisted instruction vary according to whether they have their own internet connection or not. According to the results obtained from the t-test, there is no significant difference in terms of whether or not the teacher candidates have their own internet connection in their attitudes towards computer- assisted instruction ($t(613)=.602$, $p>.05$). For their attitudes towards computer- assisted instruction, it is determined that teacher candidates who own or do not own their own internet connections or not have expressed an opinion which would correspond to the “agree” range of the scale. According to the findings obtained, it can be said that the fact that whether teacher candidates having their own internet connection or not does not affect their attitudes towards computer-assisted instruction

Table 8. Results of the ANOVA preschool teacher candidates’ attitudes towards computer- assisted instruction which are assessed according to the frequency of using the computer during the day variable

Frequency of using the computer during the day	n	\bar{X}	sd	df	F	p	Difference (LSD)
none	19	3.41	.56	3	3.740*	.011	3-4/1-2, none 5 hours and
1-2 hours	480	3.57	.59				
3-4 hours	80	3.77	.59				
5 hours and over	36	3.74	.72				

Variance analysis was performed to determine the attitudes of the teacher candidates within the scope of the research towards computer- assisted instruction according to the frequency of computer use during the day. According to the findings obtained from the variance analysis, it was observed that the attitudes of the preschool teacher candidates towards computer- assisted instruction were statistically different according to the frequency of using computer during the day ($F(3)=3.74$, $p<.05$). It was determined that teacher candidates whose frequency of using computers during the day are 3-4 hours compared to those who use the computer for 1-2 hours and those who do not use computers at all, on the other hand, teacher candidates who use computers for 5 hours or more compared to those who do not use computers at all have a higher level of attitude towards computer- assisted instruction. According to this, it can be said that the higher the frequency of using the computer during the day, the higher the teacher candidates' level of attitudes towards computer- assisted instruction. In addition, the attitudes of teacher candidates whose frequency of computer use during the day is 1-2 hours, 3-4 hours, 5 hours and above and those who do not use computers at all, correspond to the "agree" range of the scale.

Table 9. Correlation between self-efficacy beliefs of preschool teacher candidates and their attitudes towards computer- assisted instruction

		Self-efficacy	Attitude
Self-efficacy	Pearson correlation	1	,235"
	Sig. (2-tailed)		,000
	N	615	615
Attitude	Pearson correlation	,235"	1
	Sig. (2-tailed)	,000	
	N	615	615

If the correlation coefficient is 1.00, it means a perfect positive relationship, -1.00 indicates a perfectly negative relationship, and 0.00 indicates that there is no relationship. In the interpretation of the correlation coefficient in terms of magnitude, the exact ranges are not determined, but in the interpretation of the correlation the following ranges are considered: the correlation coefficient of absolute value between 0.70-1.00 can be explained as a high relationship; between 0.70-0.30 mid-level relationship; and between 0.30-0.00 it can be explained as a low level relationship (Büyüköztürk, 2003). Table 9 shows that there is a low level and significant relationship in the positive direction between self-efficacy and attitude ($r = 0.235$, $p<.01$). According to this, it can be said that as the self-efficacy belief levels of teacher candidates in the scope of the research increased, the attitude scores related to computer-assisted instruction also increased.

Findings on Qualitative Dimension

In this section, the analysis of the qualitative data obtained during the research process and the related findings are given. For the findings, direct citations reflecting the views of the participants are presented below the comments.

Table 10. Opinions of the teacher candidates on finding themselves adequate in the profession they will perform in the future

Opinions	f	
Situations they find themselves adequate	In keeping up with changing conditions	23
	In establishing good communication with children	18
	In making good planning and observation	9
	In being able to prepare children as better individuals ready for life	8
	In being able to behave conformant to the development of children	8
	In needing more experience and practice	37
	In failure to put theory into practice	15

Situation they do not find themselves adequate	In wrong choice of profession	9
	In their characters not being suitable for the profession	9
	In failure to manage crisis situations	7
	In finding the training they received inadequate	6
	In having communication problems with their families	2
	In having low self-esteem	2

When the opinions of the teacher candidates under the scope of the research asked related to the state of which they find themselves adequate in the teaching profession that they would perform in the future, they listed some situations in which they find themselves both as adequate and inadequate. Among those teacher candidates who have the opinion of finding themselves adequate, it is observed that they emphasized situations such as keeping up with changing conditions, establishing good communication with children, making good planning and observation, being able to prepare children as better individuals ready for life, being able to behave conformant to the development of children. Among the participants related to the subject (fp#2) stated that *“Everything changes very quickly in our time that we live in; I can keep pace with these changes and make an effort to be more useful...”* and (fp#20) said that *“I consider myself adequate for my profession, because the most important thing in pre-school education is to make a good and effective planning and observation ...”*

Among those teacher candidates who have the opinion of finding themselves inadequate, it is observed that they mentioned needing more experience and practice, failure to put theory into practice, wrong choice of profession, their characters not being suitable for the profession, failure to manage crisis situations, finding the training they received inadequate, having communication problems with their families, having low self-esteem, and (fp#19) clarified this situation by saying *“I don’t find myself adequate enough in my chosen career. In order to consider myself sufficient, I think I need to have more experience and practice ...”* and (23 pp) said that *“...in the simplest terms, this profession requires a lot of patience, but I’m an impatient person as a character. So, if I want to practice this profession well in the future, I have to improve my inadequacies.”*

Table 11. Teacher candidates’ opinions on the importance of having computer skills in the profession they will perform in the future

Opinions	f
Locating activities and facilitating lesson planning	16
Making the course more effective and productive	15
Helping to attract attention and interest of the children	15
Concretization of abstract thoughts	10
Helping to raise generations that can keep up with the technology	8
Providing lasting learning	4
Offering opportunities otherwise not easily accessible to children	4
Giving lectures in an unconventional way	3
Saving time	2

When the opinions of the participants about the importance of using computers in their teaching profession in the future, they drew attention to the features of computers such as locating activities and facilitating lesson planning, making the course more effective and productive, helping to attract attention and interest of the children, concretization of abstract thoughts, helping to raise generations that can keep up with the technology, providing lasting learning, offering opportunities otherwise not easily accessible to children, giving lectures in an unconventional way and saving time. (fp#28) in the most coded opinion that states locating activities and facilitating lesson planning, supported her opinion by saying that *“Computer use has an important*

place in terms of preparing daily, monthly, yearly plans and locating different activities.", whereas (fp#42) who thinks computers help attract attention and interest of the children said that "Using computers is a utility that attracts the child's attention and interest at a large extent and gravitate towards the lesson being given...".

Table 12. The opinions about the competence of preparing and implementing activities for the students by using the computer

Opinions		f
Where they find themselves adequate	Being able to prepare activities appropriate for the required achievement to be given	29
	Finding different activities with the help of computer	13
	Utilizing creativity	10
Where they find themselves inadequate	Being limited to the knowledge received from the computer courses taken	20
	Not having enough experience	16

In Table 12, the participants' opinions about the ability to prepare and implement activities to the students by benefiting from using the computer were examined. In this context, while the majority of the participant teacher candidates found themselves adequate in these issues, others found themselves inadequate. Participants, at the point of being adequate have stated their opinions about being able to prepare activities appropriate for the required achievement to be given, finding different activities with the help of computer, and utilizing creativity. (fp#12) among the teacher candidates who shared the most coded opinion that states being able to prepare activities appropriate for the required achievement to be given expressed her views by saying that "I find myself adequate. After teaching the concepts to be taught to children in the classroom, I support them by using the activities that I found in the computer..." and (fp#18) mentioned that, "...I can generate presentations, conceptual maps, cartoons, etc. regarding the achievement that I want to convey. Moreover, for the other opinion on the finding themselves being adequate category that stated utilizing creativity, (mp#50) expressed his views by saying that "By adding my creativity to the activities I get from the computer, I can make activities more appropriate for the students.".

On the other hand, at the point of being inadequate, participants for the subject of preparing and implementing activities for the students by using the computer mostly stressed being limited to the knowledge received from the computer courses taken, and the emphasis given to not having enough experience is also quite significant in numbers. About the subject (fp#19) stated her opinion by saying that "I think the computer training we had taken at school was not sufficient enough. It did not go beyond teaching us how to copy and paste..." and (mp#23) declared that "I know certain simple level things about the use of computers. I have to improve myself with sufficient experience ...".

Table 13. Opinions about computer-assisted instruction based lesson/activities

Opinions	f
Finding it useful	19
Attracting children's interest	19
Using computers in specific events	18
Providing more effective and productive lesson opportunities	14
Providing convenience	7
Increasing permanence	4
Increasing motivations of the students	3
Supporting new learning	3

Finds it necessary	Reinforcing what was learned	3
	Saving time	2
Does not find it necessary	Impelling teachers to fall into laziness	12

Table 13 summarizes teacher candidates' Opinions about computer-assisted instruction based lesson/activities. In this context, a large majority of the teacher candidates expressed their opinions that they found this subject to be necessary, whereas 12 teacher candidates expressed opposing opinions saying they did not find it necessary. Participants who found computer-assisted instruction based lesson/activities necessary emphasized that, they found it useful, attracted children's interest, used computers in specific events, provided more effective and productive lesson opportunities, provided convenience, increased permanence, increased motivations of the students, supported new learning, reinforced what was learned and saved time. Among the relevant teacher candidates (*fp#7*) voiced her opinion by saying "...as computers appeal to many sensory organs of the children, it would be useful to learn how to use the.", (*fp#5*) said that "By taking advantage of computer-assisted courses and activities only in certain activities, a more positive education can be provided." And (*mp#22*) mentioned that "Using computers during the classes is absolutely necessary. This can most certainly help saving time ...".

There are also teacher candidates who defend the opinion that computer-assisted instruction based lesson/activities are not necessary. Regarding this subject, participants emphasized that this subject impels teachers to fall into laziness. Talking about this issue, (*fp#53*) of the participants drew attention to her opinion by saying that "When giving lectures/preparing activities, preschool teachers do not use computers to help them but to find directly readily-made activities; and this impels teachers to fall into laziness..." and (*fp#17*) said "The advantages of computer-assisted courses are, of course, quite a lot, but although this is a fact, I think this situation makes teachers lazy."

Table 14. Opinions about the efforts to improve themselves

Opinions	f
Participates to conferences, seminars, panels, etc.	24
Reads articles and books about the field	18
Attends to various certificate programs and courses	14
Follows up innovations and studies about the field	12
Attends to computer training courses	9
Reads books, watches films and videos about self-improvement	9
Participates to arts-related activities	7

When opinions of teacher candidates are asked about activities that they engage in order to improve themselves, the participants voiced their opinions by listing some activities such as participating to conferences, seminars, panels, etc., reading articles and books about their profession, attending to various certificate programs and courses, following up innovations and studies about the field, attending to computer training courses, reading books, watches films and videos about self-improvement, participating to arts-related activities. Among participating teacher candidates, (*fp#17*) expressed her opinion by saying that "To improve myself, I attend club events, conferences and panels and follow the developments in our country about pre-school education...". Another teacher candidate (*mp#12*) offered his opinion on the subject by saying that "I may take computer training classes to learn with computer programs...".

Conclusion, Discussion and Suggestions

In this study, which was conducted on preschool teacher candidates' self-efficacy beliefs and attitudes towards computer-assisted instruction, results were exhibited according to the findings obtained. It is

concluded that self-efficacy belief levels of preschool teacher candidates differ according to gender. Female teacher candidates are found to have higher levels of self-efficacy than male teacher candidates. This difference emerged as a conclusion of the study can be explained by the fact that the majority of the students in the preschool education department are women and the distribution according to gender is not balanced. In fact, in other relevant studies about the subject, it is observed that the levels of self-efficacy beliefs of teachers or teacher candidates did not change by gender (Yenice, 2012; Bütün-Kuş, 2005; Yılmaz, Tomris & Kurt, 2016; Uysal & Kösemen, 2013). However, in the related body of literature, there are also studies in which female teacher candidates' self-efficacy belief levels are found to be higher than male teacher candidates (Aydın, Ömür & Argon, 2014; Akbaş & Çelikkaleli, 2006).

Although the self-efficacy belief averages of the senior year students in the study were found to be higher than the self-efficacy belief averages of the junior year students, no statistically significant difference was found at the grade level. This result coincides with the results of different other studies. Yenice (2012), in the study conducted with the participation of 429 teacher candidates who were studying in science, social studies and elementary school teaching departments, revealed that there was no significant difference in the self-efficacy belief levels in terms of the grade level variable. Uysal & Kösemen (2013), in their study with 117 teacher candidates studying in the faculty of education, stated that teacher candidates' general self-efficacy beliefs did not differ significantly in terms of grade level variable.

Another conclusion reached in the study is that preschool teacher candidates' attitudes towards computer- assisted instruction did not differ according to gender. In other words, it was concluded that the male and female teacher candidates studying in the preschool education department had similar attitudes towards computer- assisted instruction. Many studies in the body of literature support this result. Yıldırım & Kaban (2010) found that gender variable did not differ significantly in CAI behaviors in their study with teacher candidates studying in Computer Education and Instructional Technology (CEIT) department. Çelik & Bindak (2005) in their study in which they examined the attitudes of primary school teachers towards computers in terms of various variables, they have concluded that the difference of female and male teachers' computer-related attitude scores was not statistically significant. The study Karataş, Alcı & Karabıyık-Çeri (2015) conducted also found no significant difference in the attitudes of teacher candidates towards computer-assisted instruction according to gender. This situation being the fact, in a few studies however, it has been concluded that the gender variable makes a difference in the attitudes of teacher candidates towards computer- assisted instruction. These results do not coincide with the results of the current research (Berkant, 2013; Kutluca & Ekici, 2010; Yılmaz et al, 2016).

There was a statistically significant difference in the attitudes of preschool teacher candidates in terms of computer- assisted instruction when the grade level variable was observed. It was determined that senior year teacher candidates have a higher level of attitude towards computer- assisted instruction than junior year teacher candidates. A similar situation was observed in the study conducted by Yıldırım & Kaban (2010). The most positive approach to CAI in terms of grade level was shown by the students in their senior years. The fact that as the grade level increased, the attitude towards CAI increased can be explained by the increased knowledge and experience.

How preschool teacher candidates owning or not owning their own computers have affected their attitudes towards CAI was tried to be determined. According to this, there was a statistically significant difference for the variable of teacher candidates owning or not owning their own computers. It is determined that teacher candidates who owned their own computers have a higher-level attitude towards computer-assisted instruction than his teacher candidates who did not own their own computers. There are some studies that support this situation. In the study conducted by Berkant (2013), it was revealed that the teacher candidates who owned their own computers had a significantly higher level of attitudes towards computer-

assisted instruction than those who did not own their own computers. Similarly, Çelik & Bindak (2005) as well, in their study on teachers' attitudes towards computers, found that teachers who owned their own computers had significantly higher attitudes towards computers than teachers who do not own their own computers. Moreover, Kızılırmak (2008) concluded that teachers who had a computer at home had a more positive approach towards CAI than teachers who did not have a computer at home. However, when the body of literature was examined, there are studies which found that there were no differences in attitudes towards CAI when considering computer ownership variable (Aral, Ayhan, Ünlü, Erdoğan & Ünal, 2007; Erkan, 2004).

Another concern of the study is the level of attitudes of the teacher candidates towards CAI in regards to whether they have their own internet connection or not. In this respect, no significant difference was found between the attitude scores of teacher candidates. This situation can be explained by the fact that the internet is accessible from most places and sources. However, in a different study conducted, it was reached to the conclusion that the teachers who had their own internet connection found themselves more competent in CAI than the teachers who do not have their own internet connection (Kızılırmak, 2008).

Teacher candidates' attitudes towards computer- assisted instruction showed a significant difference according to the frequency of computer usage during the day. Teacher candidates who use computers for 3-4 hours during the day than the teacher candidates who use the computer for 1-2 hours and who do not use computers at all, as well as teacher candidates who use computers for 5 hours or more during the day than the teacher candidates who do not use computers at all, have a higher level of attitudes towards computer-assisted instruction. A similar situation was determined in the study of Çelik & Bindak (2005). As a result of the study conducted by Çelik & Bindak (2005), it was determined that the attitudes of the teachers who use the computer more frequently were significantly more positive than the attitudes of the teachers who never use or rarely use the computer.

The relationship between preschool teacher candidates' self-efficacy beliefs and their attitudes towards CAI was found to be in low levels, positive and significant. According to this result, it can be said that as teacher candidates' self-efficacy belief levels increased, their attitude scores towards computer- assisted instruction also increased. Yılmaz et al (2016) also have achieved a similar result in their study.

There are some cases found where the teacher candidates within the scope of the study considered themselves to be both adequate and inadequate. In relation to the cases where they found themselves adequate in performing their profession in the future, they emphasized situations such as keeping up with changing conditions, establishing good communication with children, making good planning and observation, being able to prepare children as better individuals ready for life, being able to behave conformant to the development of children. The ability to keep up with changing conditions has been determined as the most emphasized opinion in the opinions that the teacher candidates termed themselves being adequate. On the other hand, in cases where they found themselves inadequate in performing their profession in the future, they emphasized situations such as needing more experience and practice, failure to put theory into practice, wrong choice of profession, their characters not being suitable for the profession, failure to manage crisis situations, finding the training they received inadequate, having communication problems with their families, having low self-esteem. The need for more experience and practice is the opinion with the highest frequency among situations where teacher candidates do not find themselves adequate.

Another conclusion reached is the importance of preschool teacher candidates' ability to use computers in their future teaching profession they are to perform. According to this, the participants mentioned the importance of computers such as locating activities and facilitating lesson planning, making the course more effective and productive, helping to attract attention and interest of the children, concretization of abstract thoughts, helping to raise generations that can keep up with the technology, providing lasting learning, offering opportunities otherwise not easily accessible to children, giving lectures in an unconventional way

and saving time. The most emphasized opinion was the ease with which the computer provided teachers to find activities and to plan the lesson.

There are situations found where the teacher candidates found themselves both adequate and inadequate regarding the competence to prepare and implement activities for the students by using the computer. Being able to prepare activities appropriate for the required achievement to be given, finding different activities with the help of computer, and utilizing creativity are the situations where teacher candidates found themselves adequate. The situations in which they found themselves inadequate are more related to being limited to the knowledge received from the computer courses taken. In this regard, the participants emphasized not having sufficient enough experience quite significantly as well.

Another result reached by the research was opinions about computer-assisted instruction based lesson/activities. Teacher candidates, provided two differing opinions as finding it necessary and unnecessary. The opinions of the group which found it necessary were that they found it useful, it attracted children's interest, they used computers in specific events, it provided more effective and productive lesson opportunities, provided convenience, increased permanence, increased motivations of the students, supported new learning, reinforced what was learned and saved time. Providing benefit was the most emphasized opinion in this group. The opinions of the group which found it unnecessary were that computers impelled teachers to fall into laziness.

In order to improve themselves, teacher candidates found the following important related to their professions; participating to conferences, seminars, panels, etc., reading articles and books about their profession, attending to various certificate programs and courses, following up innovations and studies about the field, attending to computer training courses, reading books, watches films and videos about self-improvement, participating to arts-related activities.

When the results of the research were taken into consideration, it was found that there were no negative situations in teacher candidates' self-efficacy levels and their attitudes towards CAI, however, it was found that the attitudes of senior year teacher candidates towards CAI were higher than those of the junior year. From this point of view, it should be deemed normal for the teacher candidates in their last year before they become full-fledged teachers and to see themselves being more adequate at the point of using the computer in line with their educational skills. Because, the senior year teacher candidate is one step closer to the profession and has become more equipped and accumulated in some skills. In this context, it may be advisable to devote more time to CAI-oriented activities, especially in the lessons conducted. The study was carried out with junior year and senior year teacher candidates studying in Preschool Education departments. Similar studies can be carried out with teachers from different departments and different years of studying.

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