

A Survey of the Attitudes of Dumlupinar University Physical Education Vocational College and Faculty of Education Students on Computer-Assisted Education (CAE)

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ABSTRACT The aim of this study is to investigate the attitudes of Dumlupinar University Physical Education Vocational College and the Faculty of Education students on Computer-Assisted Education. For this purpose, a “Computer-Assisted Education Attitude Scale” was used to determine the Computer-Assisted Education attitude of the students. The sample of the study is 214 students, selected randomly—110 female and 104 male—studying at Dumlupinar University Physical Education Vocational College and Faculty of Education. The Mann Whitney U for Gender Variable and the Kruskal Wallis H Test for other variable groups were used as statistical analyses to interpret the data; a significance level of 0.05 was accepted. In the study, it was determined that the students saw Computer-Assisted Education as a necessity in developing educational studies, but they didn’t have enough knowledge about educational applications and forming content. It was revealed that the departments providing education on social sciences have less of a positive attitude than the other departments.

INTRODUCTION

From a macro perspective, education in a country is under two major powers. If these powers are thought to always exist, problems, especially in higher education, will never disappear. One of these powers is social demand and the other is the need for manpower (Rohlen 1987). When we look at the services from the perspective of manpower, we establish a mutual relationship between service and manpower or labour product (Rohlen 1987).

Universities today carry out their activities in an integrated way with a flow of information (Guri-Rosenblit 2009). Both students and academic staff have a heavy workload in academic studies. This heavy workload is predicted to be relieved by using technology in education (Clyde and Delohery 2004). It is known that technologies such as audio/video, telephone and wide-band links have been discussed by technique

communication teachers and programme coordinators in distant training programmes for the past ten years (Baywood’s Technical Communications Series: Online Education: Global Questions, Local Answers 2005; Darby 1992). Moreover, many university students carry out their education out of the classroom in different ways (Bach et al. 2006; Kezar 2011).

Today, using computers in educational activities affects the application and educational objectives and its comfort in the evaluation stage are clearly determined (Hodson et al. 2002). It is an important variable to teach teacher candidates computer-use skills, including computer technologies in educational environments and processes (Altun 2003). Moreover, a number of projects focusing on computer assistance have been suggested for both new and experienced teachers (Arenas-Marquez et al. 2012; Ersoy 2005).

Using technology in education increases the quality of education and provides the rising generations the ability to know and use technology. The computer is the leading technology among the technologies used in the educational environment and is used both inside and outside the classroom for aims such as presentation, research, report and homework (Yildirim and Kaban, 2010). Furthermore, it has been revealed in many studies that the computer is used in many

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higher education institutions on a basic level (Arnold 2007; Rainbow and Sadler-Smith 2003).

“Computer-Assisted Education” (CAE) is the act of teaching students the subjects through computers and measuring and evaluating information with the help of computers. Therefore, when CAE is mentioned, it is understood that it means “(the use of) computers as a means of a useful device for teachers in order to enrich education and increase the quality during educational activities” (Arslan 2003).

In other words, computers are devices that increase and positively affect the quality of an individual during his or her educational age, helping the student to concentrate on his or her lessons, helping effective learning, increasing creativity and success and making lessons interesting. CAE (Computer-Assisted Education) means “using computer technologies in education” (Keles and Keles 2002).

It is possible to use the computer in different ways in an educational environment. CAE is defined as directly presenting lesson content, revising the subjects learned with different methods, learning-teaching tools in activities such as problem solving and exercising. Although they look different, CAE applications show many similarities from the perspective of their duties, usage and aims (Yildirim and Kaban 2010). In many national and international programs carried out in this field, it has been emphasized that CAE is more successful than the education carried out with traditional education methods (Karamustafaoglu et al. 2002).

Universities make their services more effective by using technology. Using technology in education and offering students Computer-Assisted Education are highly important for sustainable competition (Powell 1999). Besides us-

ing technology, universities should teach their students the skills to use this technology; when these students graduate, they should have become individuals who will develop these skills and use them in their career. This study is of vital importance from the perspective of investigating the attitudes of teachers at Dumlupinar University who will shape the future.

Screening models, in the past or currently, have an existing condition that is aimed to describe the shape of the research approach.

METHODOLOGY

The survey method was used in the study. Survey models are research approaches which aim to describe a condition existing in the past or now as they were or as they are. The event, individual or object that is the subject of investigation is defined in their own conditions and as they are. They are never influenced to change their conditions or experiences. Their experiences are known to exist. The important thing is to properly observe and determine them (Karasar 2005).

The population of the research is the students of Dumlupinar University Physical Education Vocational College and Faculty of Education and the sample of the research is 214 students who were randomly chosen from the population (as shown in Table 1).

In the study, a Computer-Assisted Education Attitude Scale developed by Ali Arslan was used in order to determine the CAE attitude of the students (Arslan 2006). The scale is a 5-point Likert scale made up of 20 items. After forming the scale, the reliability co-efficient was determined to be 0.93 (Arslan 2006).

Table 1: Research sample

			Gender		Total
			Male	Female	
Department	Pre-school	Count	13	13	26
		Total %	6.1	6.1	12.1
	Physical Education	Count	37	22	59
		Total %	17.3	10.3	27.6
	Turkish	Count	26	14	40
		Total %	12.1	6.5	18.7
	Social Sciences	Count	16	19	35
		Total %	7.5	8.9	16.4
	Classroom Teacher	Count	12	42	54
		Total %	5.6	19.6	25.2
Total		Count	104	110	214
		Total %	48.6	51.4	100.0

During data analysis, age, gender, department and class independent variables were examined when investigating the attitudes of the students in the study towards Computer-Assisted Education and the Mann Whitney U for gender; the Kruskal Wallis H Test for other variables were used in order to determine whether there was a meaningful difference between the other variables. On the other hand, the Tukey HSD test was used to determine the differences between different variables.

FINDINGS

The findings gathered from the research were evaluated in accordance with the Computer-Assisted Education Attitude Scale and were examined according to the independent variables. The findings were determined under four titles accordingly.

CAE Attitudes of Students According to Gender

Table 2 shows the meaningful differences and items in the attitudes of the participants towards computer-assisted teaching according to their gender. The attitude levels of pre-service teacher students towards the “Teachers should be encouraged to use computers” statement showed a significant difference according to their gender ($U=4776.000$; $p<0.05$). It was determined that the attitudes of male pre-service teacher students towards CAE were higher than those of female pre-service teacher students (Mean =116.58). The attitude levels of pre-service teacher students towards the “Computer is an effective tool to attract students’ attention” statement showed a significant difference according to their gender ($U=4677.500$; $p<0.05$). It was determined that the attitudes of male pre-service teacher students towards CAE were higher than those of female pre-service teacher students (Mean =117.52). The attitude levels of pre-service teacher students towards the “Students learn less with Computer-Assisted Education than other methods and techniques” statement showed a significant difference according to their gender ($U=4856.000$; $p<0.05$). It was determined that the attitudes of male pre-service teacher students towards CAE were higher (Mean =115.81) than those of female pre-service teacher students (Mean =99.65). The

attitude levels of pre-service teacher students towards the “Lessons taught with the help of computers are more enjoyable” statement showed a significant difference according to their gender ($U=4427.000$; $p<0.05$). It was determined that the attitudes of male pre-service teacher students towards CAE were higher (Mean =119.93) than those of female pre-service teacher students (Mean =95.75). The attitude levels of pre-service teacher students towards the “Computers should be actively used in every classroom” statement showed a significant difference according to their gender ($U=4648.500$; $p<0.05$). It was determined that the attitudes of male pre-service teacher students towards CAE were higher (Mean =117.80) than those of female pre-service teacher students (Mean =97.76). The attitude levels of pre-service teacher students towards the “I think the computer is an effective teaching tool” statement showed a significant difference according to their gender ($U=4318.000$; $p<0.05$). It was determined that the attitudes of male pre-service teacher students towards CAE were higher (Mean =120.98) than those of female pre-service teacher students (Mean =94.75). The attitude levels of pre-service teacher students towards the “I try using computers in my classes” statement showed a significant difference according to their gender ($U=4413.000$; $p<0.05$). It was determined that the attitudes of male pre-service teacher students towards CAE were higher (Mean =120.07) than those of female pre-service teacher students (Mean =95.62).

CAE Attitudes of Students According to Age Groups

Table 3 shows the significant differences and items in the attitudes of the participants towards computer-assisted teaching according to their age variable.

The attitude levels of pre-service teacher students towards “Students cannot improve their creativity in classes with Computer-Assisted Education” statement showed a significant difference according to their age range ($\chi^2=6.969$; $p<0.05$). It was determined that the attitudes of pre-service teacher students towards CAE for the students in the 17-20 age group were the highest (Mean=120.15), for the students in the 25 and over age group, the attitudes were lower (Mean =104.18), and for the students in the 21-24 age group, the attitudes were the lowest

Table 2: Mann Whitney U test results of the students according to gender variable

<i>Teachers Should be Encouraged to Use Computer</i>				
<i>Gender</i>	<i>n</i>	<i>Mean rank</i>	<i>U</i>	<i>p</i>
Male	104	116.58	4776.000	.028
Female	110	98.92		
Total	214			
<i>Computer is an Effective Tool to Attract Students' Attention</i>				
<i>Gender</i>	<i>n</i>	<i>Mean rank</i>	<i>U</i>	<i>p</i>
Male	104	117.52	4677.500	.016
Female	110	98.02		
Total	214			
<i>Students Learn Less with Computer Assisted Education Than Other Methods and Techniques</i>				
<i>Gender</i>	<i>n</i>	<i>Mean rank</i>	<i>U</i>	<i>p</i>
Male	104	115.81	4856.000	.049
Female	110	99.65		
Total	214			
<i>Lessons Taught With The Help of Computer Are More Enjoyable</i>				
<i>Gender</i>	<i>n</i>	<i>Mean rank</i>	<i>U</i>	<i>p</i>
Male	104	119.93	4427.000	.003
Female	110	95.75		
Total	214			
<i>Computers Should Be Actively Used in Every Classroom</i>				
<i>Gender</i>	<i>n</i>	<i>Mean rank</i>	<i>U</i>	<i>p</i>
Male	104	117.80	4648.500	.015
Female	110	97.76		
Total	214			
<i>I Think Computer is an Effective Teaching Tool</i>				
<i>Gender</i>	<i>n</i>	<i>Mean rank</i>	<i>U</i>	<i>p</i>
Male	104	120.98	4318.000	.001
Female	110	94.75		
Total	214			
<i>I Try Using Computer in My Classes</i>				
<i>Gender</i>	<i>n</i>	<i>Mean rank</i>	<i>U</i>	<i>p</i>
Male	104	120.07	4413.000	.003
Female	110	95.62		
Total	214			

(Mean =97.28). Intergroup significance was observed between the 17-20 and 21-24 age groups.

The attitude levels of pre-service teacher students towards the "I cannot associate education with the computer" statement showed a significant difference according to their age range

($\chi^2=6.969$; $p<0.05$). It was determined that the attitudes of pre-service teacher students towards CAE for the students in the 17-20 age group were the highest (Mean=122.34), for the students in the 21-24 age group, the attitudes were lower (Mean =98.56), and for the students 25 and over

Table 3: Kruskal Wallis H test results of the students according to age variable

<i>Students Cannot Improve Their Creativity in the Classes with Computer Assisted Education</i>					
<i>Age</i>	<i>n</i>	<i>Mean rank</i>	χ^2	<i>p</i>	<i>Intergroup</i>
17-20	89	120.15	6.969	.031	1-2
21-24	103	97.28			
25 and over	22	104.18			
Total	214				
<i>I Cannot Associate Education with Computer</i>					
<i>Age</i>	<i>n</i>	<i>Mean rank</i>	χ^2	<i>p</i>	<i>Intergroup</i>
17-20	89	122.34	9.669	.008	1-2
21-24	103	98.56			
25 and over	22	89.30			
Total	214				
<i>Students Learn Better in the Lessons in which a Computer is Used</i>					
<i>Age</i>	<i>n</i>	<i>Mean rank</i>	χ^2	<i>p</i>	<i>Intergroup</i>
17-20	89	114.94	8.188	.017	2-3
21-24	103	96.20			
25 and over	22	130.32			
Total	214				
<i>Teaching with Computer Assisted Education Is a Waste of Time</i>					
<i>Age</i>	<i>n</i>	<i>Mean rank</i>	χ^2	<i>p</i>	<i>Intergroup</i>
17-20	89	119.49	6.215	.045	1-2
21-24	103	98.09			
25 and over	22	103.05			
Total	214				

age group, the attitudes were the lowest (Mean =89.30). Intergroup significance was observed between the 17-20 and 21-24 age groups.

The attitude levels of pre-service teacher students towards the "Students learn better in the lessons in which a computer is used" statement showed a significant difference according to their age range ($\chi^2=8.188$; $p<0.05$). It was determined that the attitudes of pre-service teacher students towards CAE for the students in the 25 and over age group were the highest (Mean=130.32), for the students in the 17-20 age group, the attitudes were lower (Mean=114.94), and for the students in the 21-24 age group, the attitudes were the lowest (Mean=96.20). Intergroup significance was observed between 21-24 and 25 and over age groups.

The attitude levels of pre-service teacher students towards "Teaching with Computer-Assisted Education is a waste of time" statement showed a significant difference according to their age range ($\chi^2=6.215$; $p<0.05$). It was determined

that the attitudes of pre-service teacher students towards CAE for the students in the 17-20 age group were the highest (Mean=119.49), for the students in the 25 and over age group, the attitudes were lower (Mean=103.05), and for the students in the 21-24 age group, the attitudes were the lowest (Mean=98.09). Intergroup significance was observed between the 17-20 and 21-24 age groups.

CAE Attitudes of Students According to Their Departments

Table 4 shows the significant differences and items in the attitudes of the participants towards computer-assisted teaching according to their department variable.

The attitude levels of pre-service teacher students towards "The computer cannot effectively be used in education" statement showed a significant difference according to their department ($\chi^2=10.749$; $p<0.05$). It was determined that

Table 4: Kruskal Wallis H test results of the students according to department variable

<i>Computer Cannot Effectively Be Used In Education</i>					
<i>Department</i>	<i>n</i>	<i>Mean rank</i>	χ^2	<i>p</i>	<i>Groups</i>
Pre-School (PS)	26	106.44	10.749	.030	T-SS
Physical Education (PE)	59	115.08			PE-SS
Turkish (T)	40	118.06			
Social Sciences (SS)	35	78.06			
Classroom (C)	54	110.99			
Total	214				
<i>I Readily And Willingly Use Computer In My Lessons</i>					
<i>Department</i>	<i>n</i>	<i>Mean rank</i>	χ^2	<i>p</i>	<i>Groups</i>
Pre-School (PS)	26	122.75	20.480	.000	SS-T
Physical Education (PE)	59	108.79			SS-PE
Turkish (T)	40	130.63			SS-PS
Social Sciences (SS)	35	70.73			
Classroom (C)	54	105.45			
Total	214				
<i>Computer Assisted Education Is An Important Issue For Me</i>					
<i>Department</i>	<i>n</i>	<i>Mean rank</i>	χ^2	<i>p</i>	<i>Groups</i>
Pre-School (PS)	26	130.60	11.158	.025	SS-PS
Physical Education (PE)	59	105.77			
Turkish (T)	40	118.79			
Social Sciences (SS)	35	83.03			
Classroom (C)	54	105.77			
Total	214				
<i>Students Cannot Improve Their Creativity in the Classes With Computer Assisted Education</i>					
<i>Department</i>	<i>n</i>	<i>Mean rank</i>	χ^2	<i>p</i>	<i>Groups</i>
Pre-School (PS)	26	90.69	11.634	.020	
Physical Education (PE)	59	117.53			
Turkish (T)	40	126.03			
Social Sciences (SS)	35	87.13			
Classroom (C)	54	104.11			
Total	214				
<i>I Look For Ways To Use Computer More Effectively In My Lessons</i>					
<i>Department</i>	<i>n</i>	<i>Mean rank</i>	χ^2	<i>p</i>	<i>Groups</i>
Pre-School (PS)	26	136.46	19.221	.001	SS-PS
Physical Education (PE)	59	111.46			SS-T
Turkish (T)	40	118.66			SS-PE
Social Sciences (SS)	35	73.59			
Classroom (C)	54	102.94			
Total	214				
<i>I Cannot Associate Education With Computer</i>					
<i>Department</i>	<i>n</i>	<i>Mean rank</i>	χ^2	<i>p</i>	<i>Groups</i>
Pre-School (PS)	26	74.81	10.957	.027	SS-PS
Physical Education (PE)	59	108.97			C-PS
Turkish (T)	40	102.55			
Social Sciences (SS)	35	121.31			
Classroom (C)	54	116.35			
Total	214				

Table 4: Contd....

<i>Students Learn Better in the Lessons in which a Computer Is Used</i>					
<i>Department</i>	<i>n</i>	<i>Mean rank</i>	χ^2	<i>p</i>	<i>Groups</i>
Pre-School (PS)	26	133.15	21.708	.000	SS-S
Physical Education (PE)	59	110.73			SS-T
Turkish (T)	40	117.61			SS-PE
Social Sciences (SS)	35	67.46			SS-PS
Classroom (C)	54	110.08			
Total	214				
<i>The Contribution of Computer Assisted Education Does Not Worth the Effort</i>					
<i>Department</i>	<i>n</i>	<i>Mean rank</i>	χ^2	<i>p</i>	<i>Groups</i>
Pre-School (PS)	26	67.90	14.163	.007	PS-T
Physical Education (PE)	59	110.04			PS-SS
Turkish (T)	40	119.66			PS-PE
Social Sciences (SS)	35	118.39			
Classroom (C)	54	107.72			
Total	214				
<i>I Do Not Want to Spend too Much Time on Computer</i>					
<i>Department</i>	<i>n</i>	<i>Mean rank</i>	χ^2	<i>p</i>	<i>Groups</i>
Pre-School (PS)	26	75.94	10.832	.029	PS-SS
Physical Education (PE)	59	103.42			PS-T
Turkish (T)	40	119.09			
Social Sciences (SS)	35	121.63			
Classroom (C)	54	109.42			
Total	214				

the attitudes of pre-service teacher students towards CAE for the students of Turkish teaching were the highest (Mean=118.06), for the students of Physical Education teaching, the attitudes were high (Mean=115.08), for the students of Classroom teaching, the attitudes were medium (Mean=110.99), for the students of Pre-School teaching, the attitudes were low (Mean=106.44), and for the students of Social Science teaching, the attitudes were the lowest (Mean=78.06). Intergroup significance was observed between the Turkish Teacher-Social Science Teacher student groups and the Physical Education Teacher-Social Science Teacher student groups.

The attitude levels of pre-service teacher students towards the "I readily and willingly use computers in my lessons" statement showed a significant difference according to their department ($\chi^2=20.480$; $p<0.05$). It was determined that the attitudes of pre-service teacher students towards CAE for the students of Turkish teaching were the highest (Mean=130.63), for the students of Pre-School teaching, the attitudes were high

(Mean=122.75), for the students of Physical Education teaching, the attitudes were medium (Mean=108.79), for the students of Classroom teaching, the attitudes were low (Mean=105.45) and for the students of Social Science teaching, the attitudes were the lowest (Mean=70.73). Intergroup significance was observed between the Turkish Teacher-Social Science Teacher student groups and Pre-School Teacher-Social Science Teacher student groups.

The attitude levels of pre-service teacher students towards the "Computer-Assisted Education is an important issue for me" statement showed a significant difference according to their department ($\chi^2=11.158$; $p<0.05$). It was determined that the attitudes of pre-service teacher students towards CAE for the students of Pre-School teaching were the highest (Mean=130.60), for the students of Turkish teaching, the attitudes were high (Mean=122.75), for the students of Physical Education teaching, the attitudes were medium (Mean=105.77), for the students of Classroom teaching, the attitudes were low (Mean=105.77)

and for the students of Social Science teaching, the attitudes were the lowest (Mean=83.03). Intergroup significance was observed between the Pre-School Teacher student group and the Social Science Teacher student group.

The attitude levels of pre-service teacher students towards the "Students cannot improve their creativity in the classes with Computer-Assisted Education" statement showed a significant difference according to their department ($\chi^2=11.634$; $p<0.05$). It was determined that the attitudes of pre-service teacher students towards CAE for the students of Turkish teaching were the highest (Mean=126.3), for the students of Physical Education teaching, the attitudes were high (Mean=117.53), for the students of Classroom teaching, the attitudes were medium (Mean=104.11), for the students of Pre-School teaching, the attitudes were low (Mean=90.69), and for the students of Social Science teaching, the attitudes were the lowest (Mean=87.13).

The attitude levels of pre-service teacher students towards the "I look for ways to use computers more effectively in my lessons" statement showed a significant difference according to their department ($\chi^2=19.221$; $p<0.05$). It was determined that the attitudes of pre-service teacher students towards CAE for the students of Pre-School teaching were the highest (Mean=136.46), for the students of Turkish teaching, the attitudes were high (Mean=118.66), for the students of Physical Education teaching, the attitudes were medium (Mean=111.46), for the students of Classroom teaching, the attitudes were low (Mean=102.94), and for the students of Social Science teaching, the attitudes were the lowest (Mean=73.59). Intergroup significance was observed between the Turkish Teacher-Social Science Teacher student groups and Pre-School Teacher-Social Science Teacher student groups.

The attitude levels of pre-service teacher students towards the "I cannot associate education with computers" statement showed a significant difference according to their department ($\chi^2=10.957$; $p<0.05$). It was determined that the attitudes of pre-service teacher students towards CAE for the students of Social Science teaching were the highest (Mean=121.31), for the students of Classroom teaching, the attitudes were high (Mean=116.35), for the students of Physical Education teaching, the attitudes were medium (Mean=108.97), for the students of Turkish teach-

ing, the attitudes were low (Mean=102.55), and for the students of Pre-School teaching, the attitudes were the lowest (Mean=74.81). Intergroup significance was observed between the Pre-School Teacher-Social Science student groups and Classroom Teacher-Pre-School Teacher student groups.

The attitude levels of pre-service teacher students towards the "Students learn better in the lessons in which a computer is used" statement showed a significant difference according to their department ($\chi^2=21.708$; $p<0.05$). It was determined that the attitudes of pre-service teacher students towards CAE for the students of Pre-School teaching were the highest (Mean=133.15), for the students of Turkish teaching, the attitudes were high (Mean=117.61), for the students of Physical Education teaching, the attitudes were medium (Mean=110.73), for the students of Classroom teaching, the attitudes were low (Mean=110.08), and for the students of Social Science teaching, the attitudes were the lowest (Mean=67.46). Intergroup significance was observed between the Pre-School Teacher-Social Science Teacher, Classroom Teacher-Social Science Teacher, Social Science Teacher-Turkish Teacher, and Social Science Teacher-Pre-School Teacher student groups.

The attitude levels of pre-service teacher students towards "The contribution of Computer-Assisted Education is not worth the effort" statement showed a significant difference according to their department ($\chi^2=14.163$; $p<0.05$). It was determined that the attitudes of pre-service teacher students towards CAE for the students of Turkish teaching were the highest (Mean=119.66), for the students of Social Science teaching, the attitudes were high (Mean=118.39), for the students of Physical Education teaching, the attitudes were medium (Mean=110.04), for the students of Classroom teaching, the attitudes were low (Mean=107.72), and for the students of Pre-School teaching, the attitudes were the lowest (Mean=67.90). Intergroup significance was observed between the Pre-School Teacher-Social Science Teacher, Classroom Teacher-Social Science Teacher, Social Science Teacher-Turkish Teacher, Social Science Teacher-Pre-School Teacher student groups.

The attitude levels of pre-service teacher students towards the "I do not want to spend too much time on the computer" statement showed

a significant difference according to their department ($\chi^2=10.832$; $p<0.05$). It was determined that the attitudes of pre-service teacher students towards CAE for the students of Social Science teaching were the highest (Mean=121.63), for the students of Turkish teaching, the attitudes were high (Mean=119.09), for the students of Classroom teaching, the attitudes were medium (Mean=109.42), for the students of Physical Education teaching, the attitudes were low (Mean=103.42), and for the students of Pre-School teaching, the attitudes were the lowest (Mean=75.94). Intergroup significance was observed between the Pre-School Teacher-Social Science Teacher, Pre-School Teacher-Turkish Teacher student groups.

CAE Attitudes of Students According to Their Classes

Table 5 shows the significant differences and items in the attitudes of the participants towards computer-assisted teaching according to their class variable.

The attitude levels of pre-service teacher students towards the "Computers cannot effectively be used in education" statement showed a significant difference according to their classes ($\chi^2=13.359$; $p<0.05$). It was determined that the attitudes of pre-service teacher students towards CAE for the first class students were the highest (Mean=128.21), for the second class students, the attitudes were medium (Mean=103.34), and for the fourth class students, the attitudes were low (Mean=92.03). Intergroup significance was observed between the first-second and the fourth class groups.

The attitude levels of pre-service teacher students towards the "I readily and willingly use computers in my lessons" statement showed a significant difference according to their classes ($\chi^2=8.480$; $p<0.05$). It was determined that the attitudes of pre-service teacher students towards CAE for the first class students were the highest (Mean=128.88), for the second class students, the attitudes were medium (Mean=104.85), and for the fourth class students, the attitudes were low (Mean=94.64). Intergroup significance was observed between the first class and the fourth class groups.

The attitude levels of pre-service teacher students towards the "I do not use computers to support lesson without an obligation" statement

showed a significant difference according to their classes ($\chi^2=6.160$; $p<0.05$). It was determined that the attitudes of pre-service teacher students towards CAE for the first class students were the highest (Mean=120.85), for the fourth class students, the attitudes were medium (Mean=106.25), and for second class students, the attitudes were low (Mean=95.97). Intergroup significance was observed between the first class and the second class groups. Because sampling was selected randomly, there are not third class in this research.

The attitude levels of pre-service teacher students towards the "Computer-Assisted Education is an important issue for me" statement showed a significant difference according to their classes ($\chi^2=6.226$; $p<0.05$). It was determined that the attitudes of pre-service teacher students towards CAE for the first class students were the highest (Mean=120.10), for the second class students, the attitudes were medium (Mean=108.14), and for the fourth class students, the attitudes were low (Mean=94.96). Intergroup significance was observed between the first class and the fourth class groups.

The attitude levels of pre-service teacher students towards the "Students cannot improve their creativity in the classes with Computer-Assisted Education" statement showed a significant difference according to their classes ($\chi^2=17.269$; $p<0.05$). It was determined that the attitudes of pre-service teacher students towards CAE for the first class students were the highest (Mean=131.89), for the second class students, the attitudes were medium (Mean=99.63), and for the fourth class students, the attitudes were low (Mean=92.21). Intergroup significance was observed between the first class-fourth class and the first class-second class groups.

The attitude levels of pre-service teacher students towards the "Students learn less with Computer-Assisted Education than other methods and techniques" statement showed a significant difference according to their classes ($\chi^2=6.324$; $p<0.05$). It was determined that the attitudes of pre-service teacher students towards CAE for the first class students were the highest (Mean=122.46), for the fourth class students, the attitudes were medium (Mean=101.08), and for the second class students, the attitudes were low (Mean=99.67). Intergroup significance was observed between the first class-fourth class and the first class-second class groups.

Table 5: Kruskal Wallis H test results of the students according to class variable

<i>Computer Cannot Effectively Be Used in Education</i>					
<i>Class</i>	<i>n</i>	<i>Mean rank</i>	χ^2	<i>p</i>	<i>Groups</i>
1	69	128.21	13.359	.001	1-2
2	72	103.34			1-4
4	73	92.03			
Total	214				
<i>I Readily and Willingly Use Computer in My Lessons</i>					
<i>Class</i>	<i>n</i>	<i>Mean rank</i>	χ^2	<i>p</i>	<i>Groups</i>
1	69	123.88	8.480	.014	1-4
2	72	104.85			
4	73	94.64			
Total	214				
<i>I Do Not Use Computer to Support Lesson without an Obligation</i>					
<i>Class</i>	<i>n</i>	<i>Mean rank</i>	χ^2	<i>p</i>	<i>Groups</i>
1	69	120.85	6.106	.047	1-2
2	72	95.97			
4	73	106.25			
Total	214				
<i>Computer Assisted Education is an Important Issue for Me</i>					
<i>Class</i>	<i>n</i>	<i>Mean rank</i>	χ^2	<i>p</i>	<i>Groups</i>
1	69	120.10	6.226	.044	1-4
2	72	108.14			
4	73	94.96			
Total	214				
<i>Students Cannot Improve Their Creativity In The Classes With Computer Assisted Education</i>					
<i>Class</i>	<i>n</i>	<i>Mean rank</i>	χ^2	<i>p</i>	<i>Groups</i>
1	69	131.89	17.269	.000	1-2
2	72	99.63			1-4
4	73	92.21			
Total	214				
<i>Students Learn Less with Computer Assisted Education Than Other Methods and Techniques</i>					
<i>Class</i>	<i>n</i>	<i>Mean rank</i>	χ^2	<i>p</i>	<i>Groups</i>
1	69	122.46	6.324	.042	
2	72	99.67			
4	73	101.08			
Total	214				
<i>Lessons Taught with the Help of Computer are More Enjoyable</i>					
<i>Class</i>	<i>n</i>	<i>Mean rank</i>	χ^2	<i>p</i>	<i>Groups</i>
1	69	120.40	8.283	.016	1-2
2	72	92.09			
4	73	110.51			
Total	214				
<i>The Contribution of Computer Assisted Education Does Not Worth the Effort</i>					
<i>Class</i>	<i>n</i>	<i>Mean rank</i>	χ^2	<i>p</i>	<i>Groups</i>
1	69	127.22	12.597	.002	1-2
2	72	91.67			
4	73	104.47			
Total	214				
<i>I Think Computer is an Effective Teaching Tool</i>					
<i>Class</i>	<i>n</i>	<i>Mean rank</i>	χ^2	<i>p</i>	<i>Groups</i>
1	69	115.96	7.438	.024	
2	72	91.74			
4	73	115.05			
Total	214				

The attitude levels of pre-service teacher students towards the “Lessons taught with the help of computers are more enjoyable” statement showed a significant difference according to their classes ($\chi^2=8.283$; $p<0.05$). It was determined that the attitudes of pre-service teacher students towards CAE for the first class students were the highest (Mean=120.40), for the fourth class students, the attitudes were medium (Mean=110.51), and for the second class students, the attitudes were low (Mean=92.09). Intergroup significance was observed between the first class and second class groups.

The attitude levels of pre-service teacher students towards “The contribution of Computer-Assisted Education is not worth the effort” statement showed a significant difference according to their classes ($\chi^2=12.597$; $p<0.05$). It was determined that the attitudes of pre-service teacher students towards CAE for the first class students were the highest (Mean=127.22), for the fourth class students, the attitudes were medium (Mean=104.47), and for the second class students, the attitudes were low (Mean=91.67). Intergroup significance was observed between the first class and second class groups.

The attitude levels of pre-service teacher students towards the “I think the computer is an effective teaching tool” statement showed a significant difference according to their classes ($\chi^2=12.597$; $p<0.05$). It was determined that the attitudes of pre-service teacher students towards CAE for the first class students were the highest (Mean=115.96), for the fourth class students, the attitudes were medium (Mean=115.05), and for the second class students, the attitudes were low (Mean=91.74).

DISCUSSION

When the gathered findings were evaluated, it can be said that male students had a significantly higher level of attitude ($p<0.05$) towards CAE compared to the female students and they tried to take advantage of CAE practices whenever possible. This situation was surprisingly encountered in the field directory (Viberg and Grönlund 2013).

When the gathered findings were evaluated in accordance with the age variable, it was seen that, of pre-service teacher students who participated in the survey, the students who belonged to the youngest age group had a low level of attitude towards CAE (Table 3). This situation

could result from the fact that computer skills could not be determined for all of the students accepting the existence of computers. Increasing age does not lead to having a negative attitude towards CAE; in contrast, it increases the attitude. It is predicted that older students will take more advantage of CAE than younger students in their career if they have sufficient education. Furthermore, the competence levels of teachers on computer use were investigated in previous studies and significant differences were observed in the motivation, attitude and competency of the teachers and candidates who had computer education (Birgin et al. 2009; Kocasa-raç 2003; Mutlu and Eroz-Tuga 2013; Winberg and Hedman 2008).

When the gathered findings were evaluated in accordance with the department variable, significant differences were seen between groups according to the department variable ($p<0.05$). When the gathered findings of the research were evaluated in accordance with the department variable, it was determined that the students of Social Sciences teaching, in particular, had a negative attitude towards CAE, but they still emphasized the necessity of CAE (Table 4). The fact that Social Sciences Teacher students stated that they did not believe CAE could properly provide education showed that there was inconsistency between CAE practices and department content and if Social Science lessons were aimed to teach with CAE, the content and the practice could be in harmony. In a study on Social Sciences classes, it was determined that since they can easily reach the necessary documents and immediately present them, Social Science teachers tended to use internet-assisted teaching rather than CAE (Acikalin and Duru 2005). Moreover, it was suggested that Web-based works were effective in language teaching, but more detailed studies needed to be carried out so that they could be more effective (Arnold 2007). Although CAE is regarded as an effective method for the lessons belonging to Science and other applied sciences, it should be assessed for other methods. In a study, narrative, modelling and computer-assisted teaching methods were used in order to teach cell division in three different groups and it was determined that modelling, and computer-assisted teaching methods tended to show a tendency from success to failure, respectively (Gunes and Celikler 2010). It was determined that proper use of CAE for university students from different departments showed a pos-

itive influence on learning and a positive attitude towards CAE (Basile and D'Aquila 2002; Wiebe and Kabata 2010). An important issue on this point is the content quality of the practice (Kessler 2007).

When the gathered findings were evaluated in accordance with the class variable, significant differences were seen between class groups ($p < 0.05$). It was determined that the fourth class students who participated in the study showed a more positive attitude when computers were effectively used, but they did not use computers readily and willingly in the classes (Table 5). Furthermore, it was determined that the second class students were trying to use computers the most to support the lesson, but they showed less attitude than that of the first class students on the aspect of the importance of Computer-Assisted Education. Although the first class students supported computer-assisted teaching more than the other classes, their high attitude for the negative statement stating that students cannot improve their creativity in the classes with Computer-Assisted Education showed that their competence on computer use should be reviewed. Although the fact that the first class students advocated the idea stating that students learn less with Computer-Assisted Education than other methods and techniques showed internal consistency between the findings, it attracted attention to the competence of the first class students on computer use. Moreover, the fact that the first class students advocated the idea that lessons taught with the help of computers are more enjoyable and their attitudes on "The contribution of Computer-Assisted Education is not worth the effort" and on "I think the computer is an effective teaching tool" showed that they had an adequate level of attitude and vision on Computer-Assisted Education, but incompetence in practice was displayed. Although there are many works about Computer-Assisted Education in educational areas, there are very few studies on higher education. The new research by Achtenhagen and Winther supports the results of our study about computer use competence in developed nations (Achtenhagen and Winther 2014).

CONCLUSION

The research has shown that sex, readable sections and classes in Computer-Assisted Education has revealed a factor affecting attitudes. This case illustrates that the prospective teach-

ers for computer-assisted instruction in pre-university education are not currently displaying a sufficient readiness level.

According to the results, CAE is implemented in more science classes and the implementation of internet-based teaching practices in the social sciences has been identified. This study revealed that social science students had a lower attitude of CAE than the students of the other departments. However, in this case, the resulting computer-aided teaching of science also shows that it is definitely more effective than other teaching methods.

This study revealed that students regarded CAE as a necessity in developing educational practices, but they had some deficiencies on education practices and forming content. CAE certainly could not meet all of the needs in educational applications, but this does not mean that CAE should be kept out of educational practices.

RECOMMENDATIONS

A number of suggestions on how to carry out these educational applications are described below.

The most important factors affecting the results of this study are the measurement and prognostic tools in the study sample. The expansion of the sample in the process, the results of the evaluation across the whole country, is thought to help take the usual precautions. This is also a scale of other measures that will create or re-address this issue in developing education services provided to date. It is vital to be able to support the activities in the basic educational policies in the country in these results.

To make the CAE more effective, support should be given to the first application of concept maps for the area.

New curriculum should be formed in accordance with computer and computer applications and pre-service teachers should be educated with the competency that enables them to cope with the contemporary requirements.

Experimental studies on CAE practices in different departments of Education Faculties should be encouraged.

REFERENCES

- Achtenhagen F, Winther E 2014. Workplace-based competence measurement: Developing innovative assess-

- ment systems for tomorrow's VET programmes. *Journal of Vocational Education and Training*, 66(3): 281-295. doi: 10.1080/13636820.2014.916740
- Acikalin M, Duru E 2005. The use of Computer technologies in the social studies classroom. *The Turkish Online Journal of Educational Technology – TOJET*, 4(2): 18-27.
- Altun A 2003. Öğretmen Adaylarının Bilisel Stilleri ile Bilgisayara Yönelik Tutumları Arasındaki İlişkinin İncelenmesi. *The Turkish Online Journal of Educational Technology - TOJET*, 2(1): 56-62.
- Arenas-Marquez FJ, Machuca JAD, Medina-Lopez C 2012. Interactive learning in operations management higher education Software design and experimental evaluation. *International Journal of Operations and Production Management*, 32(12): 1395-1426.
- Arnold N 2007. Technology-mediated learning 10 years later: Emphasizing pedagogical or utilitarian applications? *Foreign Language Annals*, 40(1): 161-181.
- Arslan A 2006. Bilgisayar Destekli Eğitim Yapmaya İlişkin Tutum Ölçeği. *Yüzüncü Yıl Üniversitesi Eğitim Fakültesi Dergisi*, 2(1): 24-33.
- Arslan B 2003. Bilgisayar destekli eğitime tabi tutulan ortaöğretim öğrencileriyle bu süreçte eğitici olarak rol alan öğretmenlerin BDE'ye ilişkin görüşleri. *The Turkish Online Journal of Educational Technology - TOJET*, 2(3): 67-75.
- Bach S, Haynes P, Lewis Smith J 2006. *Online Learning and Teaching in Higher Education*. Buckingham, GBR: Open University Press.
- Basile A, D'aquila JM 2002. An experimental analysis of computer-mediated instruction and student attitudes in a principles of financial accounting course. *Journal of Education for Business*, 77(3): 137-143.
- Baywood's Technical Communications Series: Online Education: Global Questions, Local Answers*. 2005. Amityville, NY, USA: Baywood Publishing Company, Inc.
- Birgin O, Çatlioglu H, Costu S, Aydin S 2009. The investigation of the views of student mathematics teachers towards computer-assisted mathematics instruction. *Procedia - Social and Behavioral Sciences*, 1(1): 676-680. doi: From <http://dx.doi.org/10.1016/j.sbspro.2009.01.118>.
- Clyde W, Delohery A 2004. *Using Technology in Teaching*. New Haven, CT, USA: Yale University Press.
- Ersoy Y 2005. Matematik Eğitimi Yenileme Yönünde İleri Hareketler-1: Teknoloji Destekli Matematik Öğretimi. *The Turkish Online Journal of Educational Technology – TOJET*, 4(2): 51-63.
- Guri-Rosenblit S 2009. *Digital Technologies in Higher Education: Sweeping Expectations and Actual Effects*. New York, NY, USA: Nova Science Publishers, Incorporated.
- Günes MH, Çelikler D 2010. The investigation of effects of modelling and computer assisted instruction on academic achievement. *The International Journal of Educational Researchers*, 1(1): 20-27
- Hodson P, Saunders D, Stubbs G 2002. Computer-assisted assessment: Staff viewpoints on its introduction within a new university. *Innovations in Education and Teaching International*, 39(2): 145-152.
- Karamustafaoglu O, Aydin M, Özmen H 2002. Bilgisayar Destekli Fizik Etkinliklerinin Öğrenci Kazanımlarına Etkisi: Harmonik Hareket Örneği. *Turkish Online*, 67-81.
- Karasar PDN 2005. *Bilimsel Arastırma Yöntemi*. 15th Edition. Ankara: Nobel Yayın Dagitim.
- Keles A, Keles A 2002. 2 Aralık. *Bilgisayar Destekli Öğretim ve Zeki Öğretim Sistemleri*. Paper presented at the Inet-Tr Istanbul.
- Kessler G 2007. Formal and informal CALL Preparation and teacher attitude toward technology. *Computer Assisted Language Learning*, 20(2): 173-188.
- Kezar AJ 2011. *New Pedagogies and Practices for Teaching in Higher Education : Blended Learning: Across the Disciplines, Across the Academy*. Sterling, VA, USA: Stylus Publishing.
- Kocasarac H 2003. Bilgisayarların Öğretim Alanında Kullanımına İlişkin Öğretmen Yeterlilikleri. *The Turkish Online Journal of Educational Technology – TOJET*, 2(3): 77-85.
- Mutlu A, Eroz-Tuga B 2013. The role of computer-assisted language learning (CALL) in promoting learner autonomy. *Eğitim Araştırmaları-Eurasian Journal of Educational Research*, 13(51): 107-122.
- Powell JV 1999. Interrelationships between importance, knowledge and attitude of the inexperienced. *Computers and Education*, 32(2): 127-136.
- Rainbow SW, Sadler-Smith E 2003. Attitudes to computer-assisted learning amongst business and management students. *British Journal of Educational Technology*, 34(5): 615-624.
- Rohlen TP. 1987 *Japonya'da Maneviyat Eğitimi* (Yazgan, Trans.). Istanbul: Tür Dünyası Araştırmaları Vakfı.
- Viberg O, Gronlund A 2013. Cross-cultural analysis of users' attitudes toward the use of mobile devices in second and foreign language learning in higher education: A case from Sweden and China. *Computers and Education*, 69: 169-180: doi: 10.1016/j.compedu.2013.07.0
- Wiebe G, Kabata K 2010. Students' and instructors' attitudes toward the use of call in foreign language teaching and learning. *Computer Assisted Language Learning*, 23(3): 221-234.
- Winberg TM, Hedman L 2008. Student attitudes toward learning, level of pre-knowledge and instruction type in a computer-simulation: Effects on flow experiences and perceived learning outcomes. *Instructional Science: An International Journal of the Learning Sciences*, 36(4): 269-287.
- Yildirim S, Kaban A 2010. Attitudes of pre-service teachers about computer supported education. *International Journal of Human Sciences*, 7(2): 158-168.