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Attitude of Teacher Candidates toward Making Computer Supported Education

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Abstract

The purpose of this study was to investigate the teacher candidates' attitude toward computer assisted education according to their class level, branch, and gender. The data were obtained from 173 undergraduate students from Buca School of Education at Dokuz Eylül University. "The Attitude Scale Toward Making Computer Supported Education" which is developed by Arslan (2006), was used to determine the students' attitude. At the end of the study it was determined that the teacher candidates' attitudes toward making computer supported education are positive. On the other hand, there are not a significant difference between the attitudes of teacher candidates toward computer assisted education and their branch, class level, and gender.

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1. Introduction

The computers that we use in every step of our lives have an important place in terms of education programs also. When developing technology and ever-growing knowledge are taken into consideration, it can be understood why modern societies should give particular importance to usage of computer and computer technologies.

Nowadays, as well as reaching the information, reaching it as fast as possible has also gained importance. Efficient computer usage is important since it increases the access rate to the information. In addition to this, by appealing to more sense organs by means of the computer assisted courses, the students can be provided to learn easily and have their learning's more permanent. Computer usage avoids the monotony during the course, and keeps the students' interests towards the course alive for a longer time. When the literature is reviewed, many researches displaying that the computer assisted courses increase academic achievement can be encountered. [1,2,3,4]

When we think of that almost every house has a computer in this century we are going through, it becomes apparent once again how important to give a computer assisted instruction at schools is. By means of the computer assisted courses, the students can learn to use computer efficiently by observing their teachers. Thus, the students will understand that the computers are not only the devices to be used to have a good time by playing games and

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surfing the internet, but also the devices to be used to make a contribution to their cultural and intellectual knowledge when it is used efficiently.

Computer usage takes a particular importance for the practical courses such as Science. For example, some of the testing apparatus cannot be available in each laboratory due to its high cost. In such cases, simulation programs to be prepared can be used to fill the deficiencies at laboratories. The simulation programs will decrease the educational cost, and provide the students to observe the experiments which they could not do under normal conditions. Moreover, since they will not face to face with the problem of failure in sensitive devices existing on the testing apparatus, the students can obtain an environment where they can study more freely. Of course none of the simulation programs can be substituted for the experiments done by hand in a laboratory environment. However, computer usage helps to fill an important deficiency in poor physical conditions.

When all of the aforementioned things are taken into consideration, it can be easily understood how important the computer usage is in educational institutions. And giving computer assisted courses at schools can only be possible by educating teachers who have willingness to use computer. Therefore, in this study, it is intended to determine the teacher candidates' attitudes towards computer assisted instruction, and how these attitudes change according to department, class level, and gender.

2. Method

2.1 Participants

Participants of the research consist of 173 teacher candidates who are reading at Dokuz Eylül University, Buca Education Faculty. 31 of these teacher candidates read in Physics Education Department, 43 of them read in Science Education Department, 35 of them read in Mathematics Education Department, 32 of them read in Primary School Education Department, and 32 of them read in Computer Education and Instructional Technology Department (CEIT). 42.2 % of the participants are male, and 57.8 % of them are female

2.2 Measurement Tool

“The Attitude Scale toward Making Computer Supported Education” (ASMCSE) developed by Arslan [5], is used in the research. The scale which is a 5-point Likert type consists of totally 20 items 10 of which are negative and 10 of which are positive. Arslan [5] stated that the scale consists of single factor, and its reliability coefficient is 0.93. However, we calculated the Cronbach's alpha reliability coefficient of the scale that we applied on 173 teacher candidates as 0.88. In the light of this information, it can be said that the scale is highly reliable.

3. Findings

Teacher candidates' attitude scores according to their departments are seen in Table 1. According to this, all of the teacher candidates from each department have highly positive attitudes towards making computer supported education.

Table1. Mean ASMCSE scores according to teacher candidates' department.

| Department | N | Mean | SD |
|--------------------------|----|-------|-------|
| CEIT | 32 | 82,12 | 12,24 |
| Physics Education | 31 | 75,58 | 11,97 |
| Science Education | 43 | 74,74 | 11,00 |
| Mathematic Education | 35 | 79,91 | 12,89 |
| Primary School Education | 32 | 76,59 | 12,30 |

Attitude scores towards making computer-assisted instruction of the students who read in Computer Education and Instructional Technology Department are higher than the others. Minimum attitude scores belong to

the students who read in Science Education Department. ANOVA is applied in order to determine whether the difference between the students' attitude scores is statistically significant or not. Test results can be seen in Table 2.

Table 2. ANOVA results

| Source of Variance | Sum of Squares | df | Mean Square | F | p |
|--------------------|----------------|-----|-------------|------|-----|
| Between Groups | 1351.79 | 4 | 337.95 | 2.33 | .06 |
| Within Groups | 24381.69 | 168 | 145.13 | | |
| Total | 25733.49 | 172 | | | |

As a result of the analysis, it is found that there is no statistically significant difference between the attitude scores of groups towards computer-assisted instruction. ($F_{(168,4)}=2,33, p=.06$).

Teacher candidates' attitude score averages according to their class levels and their standard deviations are seen in Table 3. According to this, attitude scores towards making computer supported instruction of teacher candidates who read in 3rd grade and 4th grade are higher than the attitude scores of teacher candidates who read in 1st grade and 2nd grade.

Table 3. Mean ASMCSE scores according to teacher candidates' class level

| Class Level | N | Mean | SD |
|-----------------------|----|-------|-------|
| 1 st grade | 51 | 75,23 | 10,52 |
| 2 nd grade | 63 | 76,85 | 14,42 |
| 3 rd grade | 27 | 80,77 | 9,79 |
| 4 th grade | 32 | 80,40 | 11,28 |

In order to evaluate the significancy of the difference occurred between attitude scores, this time, the environment determined according to class level and attitude scores were compared to each other by ANOVA. Test results are seen in Table 4.

Table 4. ANOVA results

| Source of Variance | Sum of Squares | df | Mean Square | F | p |
|--------------------|----------------|-----|-------------|------|-----|
| Between Groups | 844.21 | 3 | 281.40 | 1,91 | .13 |
| Within Groups | 24889.27 | 169 | 147.27 | | |
| Total | 25733.49 | 172 | | | |

Test results has revealed that attitude scores of the teacher candidates did not differ significantly according to their class levels ($F_{(169,3)}=1,91, p>0$).

Teacher candidates' attitude score averages towards computer supported education according to their gender are seen in Table 5.

Table 5. Mean ASMCSE scores according to teacher candidates' gender.

| Gender | N | Mean | SD |
|--------|-----|-------|-------|
| Female | 100 | 78.15 | 12.85 |
| Male | 73 | 76.96 | 11.38 |

Attitude scores of female students are higher than the males. In order to determine the significance of this difference statistically, t-test is performed between average attitude scores of female and male students (Table 6). Test results has revealed that teacher candidates' attitudes towards giving computer supported education did not differ significantly according to their gender.

Table 6. t-test results.

| Gender | N | Mean | df | t | p |
|--------|-----|-------|-----|-----|-----|
| Female | 100 | 78.15 | 171 | .63 | .53 |
| Male | 73 | 76.96 | | | |

Conclusion

As a result of the research, it is determined that teacher candidates' attitudes towards making computer supported education are positive. When the studies existing in literature are examined, it is seen that similar results are reached by different researchers also [6, 7]. According to this, it can be said that the teacher candidates have willingness to use the computer as an educational tool, and they will perform computer-assisted activities during their lessons if they have the opportunity for this in the future.

Another finding obtained from the research is that teacher candidates' attitudes towards computer supported education did not differ significantly according to their departments, and attitudes for all departments are highly positive. Teacher candidates who read in Computer Education and Instructional Technology Department also exist within the participants of the research. Of course the teacher candidates who read in this department will have a positive attitude towards using computer in education. Teacher candidates' who read in other departments having attitude scores as high as the Computer Education and Instructional Technology Department students' is important to display how new generation teachers are conscious about technology usage.

Teacher candidates' attitudes towards supported education did not differ significantly according to their class levels also. Although the teacher candidates who read in 3rd grade and 4th grade have higher attitude scores than the teacher candidates who read in 1st grade and 2nd grade; this difference is not statistically significant. Moreover, attitudes of teacher candidates from all class levels are highly positive. Taking Material Design Course in 3rd or 4th grade may lead the students who read in these class levels to be more conscious about technology usage. However, the teacher candidates who read in 1st grade are also as conscious as the teacher candidates who read in 4th grade about computer usage in education.

Generally it is thought that males are interested in computer more than the females. However, as a result of the research, it is found that there is no significant difference between the attitudes towards computer-assisted instruction of female and male teacher candidates. And some of the studies existing in literature also support this finding of the research [6, 7, 8]. Both female and male teacher candidates have highly positive attitudes towards computer usage.

This research is limited with data collected from 173 teacher candidates who read in Physics Education, Science Education, Mathematics Education, Computer Education and Instructional Technology and Classroom Teaching Departments. The studies to be done with data collected from higher number of teacher candidates will be important in terms of generalizability of findings. Moreover, to reach the teacher candidates who read in different departments of different universities will provide us to present the general tendency in Education Faculties about the subject.

References

1. A. Karaçöp, K. Doymuş, A. Doğan and Y. Koç, Öğrencilerin akademik başarılarına bilgisayar animasyonlu ve Jigsav tekniğinin etkisi, Gazi Eğitim Fakültesi Dergisi 29 (1), 211-235.
2. H. Akçay, C. Tüysüz and B. Feyzlioğlu, Bilgisayar destekli fenbilgisi öğretiminin öğrenci başarısı ve tutumlarına etkisine bir örnek: Mol kavamı ve avagadro sayısı TOJET 2 (2) (2003), 57-66.
3. Y. Çekbaş, H. Yakar, B. Yıldırım and A. Savran, Bilgisayar destekli eğitimin öğrenciler üzerindeki etkisi. TOJET 2 (4) (2003), 76-78
4. N. Yiğit and A. R. Akdeniz, Fizik dersinde bilgisayar destekli etkinliklerin öğrenci kazanımları üzerine etkisi: elektrik devreleri örneği, Gazi Eğitim Fakültesi Dergisi 23 (3) (2003), 99-113.
5. A. Arslan, Bilgisayar destekli eğitim yapmaya yönelik tutum ölçeği, Yüzüncü Yıl Üniversitesi, Eğitim Fakültesi Dergisi 3 (2) (2006), 24-33
6. T. Kutluca and G. Ekinci, Öğretmen adaylarının bilgisayar destekli eğitime ilişkin tutum ve öz-yeterlilik algılarının incelenmesi, Hacettepe Eğitim Fakültesi Dergisi 38, 177-188.
7. S. Yıldırım and A. Kaban, Öğretmen adaylarının bilgisayar destekli eğitime karşı tutumları, Uluslararası İnsan Bilimleri Dergisi 7 (2) (2010), pp158-168.
8. H. C. Çelik and R. Bindak, İlköğretim okullarında görev yapan öğretmenlerin bilgisayara yönelik tutumlarının çeşitli değişkenlere göre incelenmesi, İnönü Üniversitesi Eğitim Fakültesi Dergisi 6 (2005), 27-38.