

Full Length Research Paper

The relationship among computer self-efficacy scores, demographic characteristics, and grades in computer courses of students at the school of physical education and sports

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Computers have become a part of every area of human life, and are often used in the field of education. Becoming self-confident with regard to computer use can therefore make individuals' lives particularly the lives of university students substantially easier. The purpose of this study is to evaluate the computer self-efficacy belief (CSEB) level of students in the School of Physical Education and Sports and to determine whether there is a significant relationship between students' grades in computer courses and their demographic characteristics, including age, gender, region of origin, and place of residence. The study participants include 127 students enrolled in the School of Physical Education and Sports. Of these students, 57.5% (n:73) were male (mean age: 20.06 ± 1.59 yrs), and 42.5% (n:54) were female (mean age: 19.90 ± 1.62 yrs). Data were collected using a questionnaire and measured according to a CSEB scale. Participants' grades in their computer courses were obtained from the school's computer instructor. The study participants were found to have different CSEB levels depending on their demographic characteristics. The CSEB levels of women were found to be higher than those of men ($p < 0.05$); in other words, women were more self-confident than men with regard to computer use. In addition, there was a significant correlation ($p < 0.05$) between CSEB levels and students' regions of origin; students from the Central Anatolian region had the highest CSEB values. The higher CSEB levels of students from the Central Anatolian region may be explained by the fact that this region provides more computer and Internet facilities to its residents. We also found a positive correlation between students' CSEB levels and their grades in computer courses.

Key words: Computers, computer self-efficacy, students of physical education.

INTRODUCTION

Computer technology and, consequently, the field of communications are developing very quickly. These developments have affected all areas of our lives. In the field of education, computers are often used. According to some studies, computer-assisted education has been found to yield higher levels of success than traditional

methods (Cekbas et al., 2003, Chang, 2002, Hacker and Sova, 1998, Yalcinalp et al., 1995). In addition, by presenting information in versatile ways and thereby enabling individuals to remember that information in both graphic and symbolic forms, computer-assisted education makes learning more meaningful and enables the longer-

term retention of information (Cekbas et al., 2003). Computer-assisted education is known to have a positive impact on students and to increase student achievement (Renshaw and Taylor, 2000, Cekbas et al., 2003). The development of the technology and computer mediated education systems leads to explore new teaching techniques that can be used at university, primary and secondary classroom settings (Cekbas et al., 2003).

Bandura (1977), defines an individual's "self-efficacy" as his or her ability to cope with the problems he or she faces. Self-efficacy is associated with how well an individual implements the actions necessary to solve a problem when it is encountered. In other words, self-efficacy refers to an individual's ability to perform a task successfully. The concept of self-efficacy was developed in the field of social psychology and has been found to be applicable to a variety of areas in different disciplines (Akkoyunlu and Orhan, 2003, Lev, 1997). Computer proficiency is one such area (Akkoyunlu and Orhan, 2003, Karsten and Roth, 1998, Compeau and Higgins, 1995).

A person's level of computer self-efficacy belief (CSEB) is defined as "a judgement of one's ability to use a computer" (Akkoyunlu and Orhan, 2003). Individuals with high levels of CSEB have been found to be more willing to participate in computer-related activities and to be more successful at these activities (Akkoyunlu and Orhan, 2003, Hill et al., 1987). Given the importance of computers in the lives of people today, it is understandable that individuals' CSEBs are important to their success.

Several studies involving individuals from different occupations have been conducted on the relationship between levels of CSEB and factors such as gender, frequency of computer use, conditions of access, and history of computer experience (Akkoyunlu and Orhan, 2003, Miura, 1987, Murphy, 1989). Some of these studies reported that gender affected CSEB levels (Miura, 1987), whereas other studies that involved different groups of participants reported that gender had no effect on CSEB levels (Murphy, 1989). To date, no studies have been conducted on the CSEB levels of students in schools of physical education and sports; the CSEB levels of individuals who will be teaching physical education and sports should be better understood.

The purpose of the study

Using the existing literature as a starting point, the purpose of this study was to evaluate the CSEB levels of students enrolled in the School of Physical Education and Sports and to determine whether there is a significant relationship between CSEB levels and demographic characteristics (including age, gender, region of origin, and place of residence) and grades in computer courses (GCC).

Research questions

1. What is the relationship between the CSEB levels of students enrolled in the School of Physical Education and Sports and their demographic characteristics?
2. What is the relationship between the CSEB levels of students enrolled in the School of Physical Education and Sports and their grades in computer courses?
3. What are the demographic characteristics of the students participating in the study?

MATERIALS AND METHODS

Subjects

The study participants consisted of 127 students enrolled in the School of Physical Education and Sports.

Data collection

The data were obtained using a questionnaire developed by Akkoyunlu and Orhan (2003) and analysed according to a CSEB scale. The students' grades in their computer courses were obtained from the school's computer instructor.

Data collection questionnaire

The questionnaire was used to collect data about students' ages, genders, regions of origin, places of residence, and grades in computer courses.

The computer self-efficacy belief scale

For the purpose, a five scale Likert type scale consisting 16 items was developed by Akkoyunlu et al. (2005). This 16-item questionnaire, developed by the researchers, measures subjects' computer self-efficacy beliefs on a scale. Participants rate each item according to a 5-point scale (1: never, 2: rarely, 3: sometimes, 4: often, 5: always).

Statistical analysis

The data were analysed using the SPSS software package (SPSS for Windows v. 15.0, SPSS, Chicago, IL, USA). The means and standard deviations of each of the items measured were calculated. The differences between the means for each group were determined using a nonparametric test for independent samples (the Mann-Whitney U test). A p value of 0.05 was considered statistically significant.

RESULTS AND DISCUSSION

Of the 127 students who participated in the study, 57.5% (n:73) were male (mean age: 20.06 ± 1.59 years), and 42.5% (n:54) were female (mean age: 19.90 ± 1.62 years) (Table 1). The study group was made up of 72.4% (n:92) students from the Marmara region, 10.02% (n:13) from the Black Sea region, 9.4% (n:12) from the

Table 1. The means and p values of the demographic characteristics studied.

Characteristics	Male n:73(57.5%)	Female n:54(42.5%)	Total (n:127)	p* value
Age (years)	20.06±1.59	19.90±1.62	20.00±1.60	0.443
CSEB	49.67±5.95	52.18±6.56	50.74±6.31	0.004*
GCC	68.01±18.70	73.96±14.61	70.54±17.27	0.048*

Values are given as mean ± SD, *Significant differences (CSEB: computer self-efficacy belief, GCC: grades in computer courses).

Table 2. The distribution of study participants' geographical regions of origin within Turkey.

Region	Frequency	Percent	CSEB	GCC
Marmara	92	72.4	50.47±6.27	70.18±17.85
Black Sea	13	10.2	52.23±8.11	69.61±20.25
Mediterranean	12	9.4	50.41±5.26	67.91±12.14
Aegean	2	1.6	49.50±0.70	87.50±3.53
Central Anatolian	3	2.4	57.33±6.50	80.66±17.21
Eastern Anatolian	4	3.1	48.00±4.54	72.50±11.90
Southeastern Anatolian	1	0.8	53.00±0.00	75.00±0.00

(CSEB: computer self-efficacy belief, GCC: grades in computer courses).

Table 3. The means and p values of the CSEB levels according to students' places of residence

Places of residence	Frequency	Percent	CSEB	p* value
Dormitory residence	29	22.8	50.65±4.66	0.827
Home	98	77.2	50.76±6.74	

Mediterranean region, 2.4% (n:3) from Central Anatolian, 1.6% (n:2) from the Aegean region, 3.1% (n:4) from Eastern Anatolian and 0.8% (n:1) from the Southeast Anatolian region (Table 2). At the time of the study, 22.8% (n:29) of the participants were residing in university dormitories, and 77.2% (n:98) were living at home (Table 3). The average GCC for the entire group was 70.54 ± 17.27 ; female students had received an average grade of 73.96 ± 14.61 , and male students had received an average grade of 68.01 ± 18.70 . We found that this gender difference in course grades, with women being more successful than men, was statistically significant ($p < 0.05$). In addition, we found a significant difference in the average GCC according to place of residence ($p < 0.05$); dormitory residents were found to be more successful than students living at home.

The overall average CSEB level of the study group was 50.74 ± 6.31 . The mean CSEB level of the women was 52.18 ± 6.56 and of the men was 49.67 ± 5.95 . We found that this difference between the genders was statistically significant ($p < 0.05$) and, as a result, concluded that the women were more confident about using computers. We found a significant correlation between CSEB levels and computer-course grades ($p < 0.05$); the students who had more confidence in their computer abilities were

more successful in their computer classes. We also found a significant correlation between the CSEB results and the geographic regions from which the students came. Students from the Central Anatolian region had the highest CSEB levels. This result indicates that computers are more accessible and more frequently used in Central Anatolian than in the other regions. In addition, students living at home exhibited significantly higher CSEB levels than students living in the dormitory. It is likely that this is because students living at home have easier access to computers and the Internet.

Previous studies of CSEB have found that individuals with higher CSEB levels were more willing to participate in computer-related activities and had higher expectations of those activities (Karsten and Roth, 1998, Compeau and Higgins, 1995, Hill et al., 1987, Akkoyunlu and Orhan, 2003). The same studies showed that those high-CSEB individuals were much more able to effectively address the problems that they encountered when using computers. Individuals' CSEB levels may differ depending on where they grew up and other demographic characteristics. Our study found that individuals did have different CSEB levels according to their demographic characteristics; for example, the CSEB levels of males were found to be higher than those of females (p

<0.05).

When we examined the relationship between students' regions of origin and their CSEB levels, we found that the students from the Central Anatolian region had the highest CSEB values. The CSEB values were for the Southeastern Anatolian, Black Sea, Marmara, Mediterranean, Aegean, and Eastern Anatolian regions (Table 2). The reason for these differences is that residents of different regions have different levels of access to computer and Internet facilities. Our results indicate that the Central Anatolian region has more computer facilities and better Internet access than other regions.

When universities began making academic and social announcements via the Internet, students required the Internet for academic and social reasons at least once a week. University students use computers primarily for learning material, doing homework, conducting research, and communicating with family and friends (Sahin, 2009, Scherer, 1997). Teachers use the Internet mostly for communication purposes (such as reading e-mail and using chat functions) (Akkoyunlu, 2002). College students' CSEB levels have become more important as their computer usage has become more intense. The healthy and efficient use of computers and the Internet has been found to be associated with psychological maturity and self-efficacy (Sahin, 2009, Wang, 2001). In our study, we determined the CSEB values of students enrolled in the School of Physical Education and Sports and related these values to the students' actual levels of computer proficiency.

Conclusion

Societies have changed rapidly with the development in the information and communication technology. Today, computers have become widespread and have begun to be used in every area of human life. For this reason, individuals' self-confidence with regard to their use of computers especially that of university students' can make their lives easier. Based on this reasoning, we believe that higher CSEB levels can increase students' levels of academic achievement as well as their self-confidence about using computers. Introducing students to computers at an early age may therefore benefit them later in life.

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