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Faculty Attitudes towards Computer Assisted Instruction at the University of Gaziantep

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Abstract

This study aims at revealing faculty attitudes towards computer assisted instruction at University of Gaziantep, Turkey in a multifaceted way. Additionally, it tries to determine underlying factors that shape these attitudes. After a pilot study, the questionnaire was applied to a sample population of 145 faculty that were chosen randomly. The results revealed that faculty attitudes towards computer assisted insruction are positive. Age, sex, teaching experience, level of proficiency in English and computer usage skills have no or little effects over these attitudes.According to the results of the study, faculty who have prior knowledge on computers expose rather positive attitudes towards computers in education.Another important outcome of the study is the existence of a gender gap in terms of computer assisted instruction.Although there seems to be no difference between male and female faculty concerning their background education regarding computers, male faculty feel confident about the matter, whereas female faculty feel uncomfortable about using computers in their lessons.

Key words : Computer aided education, Foreign language teaching, attitude, education and technology.

Özet

Söz konusu çalışmada Gaziantep Üniversitesi, Türkiye ‘de öğretim elemanlarının bilgisayar destekli eğitime ilişkin tutumlarının çok yönlü ölçülmesi amaçlanmaktadır. Bunun yanı sıra, araştırmada sözü edilen davranışları şekillendiren olası faktörler de incelenecektir..Pilot çalışmadan sonra rastlantısal olarak seçilen 145 öğretim elemanına anket uygulanmıştır.Bilgisayar destekli eğitime karşı, öğretim

elemanlarının olumlu tutumları olduğu belirlenmiştir.Bunun yanı sıra öğretim elemanlarının, bölümlerinin, cinsiyetlerinin, öğretmenlik deneyimlerinin, bilgisayar beceri seviyelerinin ve İngilizce bilgi düzeylerinin sözü edilen tutumlar üzerinde herhangi bir etkisinin bulunmadığı ortaya çıkmıştır.Öte yandan, bilgisayar eğitiminin bu tutumları olumlu yönde etkilediği araştırmanın bulguları arasındadır. Erkek ve bayan öğretim elemanları arasında bilgisayar becerisi ve bilgisayar konusunda eğitimli olup olmama durumuna ilişkin herhangi bir farka rastlanmamıştır.Fakat bulgular erkek öğretim elemanlarının derslerde bilgisayar kullanma konusunda kendilerine daha fazla güvendiklerini ortaya çıkarmıştır.

Anahtar sözcükler : Bilgisayar destekli eğitim, Yabancı dil öğretimi, tutum, eğitim ve teknoloji.

1. INTRODUCTION

1.1 Background of the study

The integration of computers into education has a relatively brief history. The earliest studies were attempts to establish programs that would provide the students with rapid feedback and thus make the students take an active role in the learning process, but because of the high costs of computers no prevalence could be obtained. (Taylor, 1980: in Molnar) After the personal computer (PC) revolution in 1975 computers entered the realm of education profoundly all around the world.

But in Turkey the situation has been significantly different. As Alkan suggests (1989: 126-128) there are six phases of technological applications in education:

a. recognition

b. research

c. examination

d. application

e. improving by using the results of application

f. examination and improving

In Turkey, however, the educational system has not completed the recognition phase yet. (ibid.) This denotation reveals that there are some shortfalls about CAI in Turkey. Amongst these shortfalls, the one concerning the educators is the most remarkable one. Because according to Yaşar (1997:3) educators' insufficiency in computer knowledge and CAI makes it impossible to make use of computers. Thus, it is easy to claim that in order to eliminate this insufficiency; studies about the issue are needed.

There are numerous research areas in computer assisted instruction (henceforth CAI). The followings can be counted as an outline for these areas:

a. Software,

b. Hardware,

c. Educators and potential educators,

d. Organization and development of these main sources above in the process of education. (Uşun, 2000: 63-64)

The concern of this study is the third point mentioned above as it tries to unveil faculty attitudes towards CAI and the factors that shape them.

1.2 Statement of the problem

As a result of prevalent, immense and rapid changes in technology, the interaction between education and technology has become more profound than ever. When the roles of computers in education are considered, this rapidity and immensity become crucial for education. Due to similar changes in computer technologies, it has now become more and more difficult to make predictions about the future of education. For instance, some, taking computers into consideration, foresee a future without schools and teachers (Sönmez, 1998); some others predict a future education without computers as we know them today. (İpek, 2001: 338) Nevertheless, taking the present conjunctures into account, it is now impossible to talk about contemporary education without mentioning computers. Education at university level, computers in education, and attitudes towards computers in education are three main points which shaped the main problem of this study.

This study consists of four phases. These phases are; establishing the problem, review of literature, developing a questionnaire and applying it to the subjects, and interpreting results. During the first phase of the study, interviews were carried out with the faculty at the University of Gaziantep, and fragmentary observations were made during a semester. As a result, it was seen that gender, experience, department and level of English and level of computer proficiency played roles in shaping faculty attitudes towards CAI. In addition, male faculty seemed to have more positive attitudes towards CAI. Furthermore, experienced faculty seemed to prefer staying away from computerised education. In addition to this, faculty in Faculty of Engineering seemed to have more positive attitudes towards *computers* than the other faculty members. However, some lecturers from the same faculty seemed to have really negative attitudes towards CAI, claiming that using computers in the process of education was not the 'be all end all' way of teaching and learning. Another point was that nearly none of the faculty seemed to have prior education concerning the use of computers. However, most of them seemed to consider themselves qualified in using computers in their lessons.

Therefore, the main research question of this study appeared as:

What are faculty attitudes towards CAI at the University of Gaziantep?

1.3 Purpose of the study

The purpose of this study is (1) *to improve an attitude scale* and by using this scale, (2) *determine faculty attitudes towards CAI of the University of Gaziantep*. Determining the actors that outline these attitudes is also another concern of this study.

1.4 Assumptions and limitations

In this study, it is assumed that the responses of the subjects to the items of the questionnaire reflect their actual opinions. It is also assumed that subjects comprehend the items of the questionnaire in the same or similar way. It is also assumed that the population chosen randomly, represents the whole population. Moreover, it is assumed that faculty attitudes towards CAI are homogeneous within departments. For the last thing, despite the fact that information technology (computers in specific) is a relatively

costly issue, economic stands of the subjects will not be taken into account assuming that they are in similar economic stands.

Limitations of this study are various. For one thing, this study is limited with 2004-2005 academic years at the University of Gaziantep. Secondly, it is limited with the data provided from the educational literature, and 145 teaching staff of the following departments at the University of Gaziantep;

a. Faculty of Arts and Sciences

b. Faculty of Engineering

c. Faculty of Economic and Administrative Sciences

d. Faculty of Education

e. Other Departments including *Center for Atatürk's Principles and History of Revolutioin, Center for Foreign Language, Physical Education and Sports Department, and Turkish Language Department*

2. METHOD OF RESEARCH

This study has a descriptive research design. According Isaac & Micheal (1997, cited in Ekmekçi, 1991:43) descriptive method is used "…to describe systematically the facts and characteristics of a given population or area of interest, factually and accurately."

According to Ekmekçi (1991:43) "Descriptive studies are generally categorized into two main groups." These are, survey research and direct observation research. Survey research makes use of questionnaires for data gathering, while direct observation research makes use of observations. These indications make it clear that the current study is in fact a survey research, as it uses a questionnaire to collect data from the subjects.

2.1 Subjects

The population of this study is the entire faculty of the University of Gaziantep. Although there are 752 faculty at this university, this study comprises 314 of them. The reason for this is, amongst the departments of the university, the teaching staff of Faculty of Medicine and all vocational schools were excluded from the population due to their dissimilar curriculum and applications. After this exclusion, the population decreased to 314. As one of the main concerns of this study is to determine attitude differences between teaching staff of different departments, stratified sampling is required, for the reason that stratified sampling assures representation of subgroups in the population. (Balcı 2001:96)

In order to obtain a sample that would represent the whole population, the following formula proposed by Cochran (1962, from Balcı, 2001: 108) was employed.

$$n = \frac{t^2 (PQ) / d^2}{1 + (1/N)\, t^2 (PQ) / d^2}$$

n = sample size

t = confidence level's table value (1,65)

d = confidence level (%90)

PQ = constant (0,25)

N = population

The results obtained from the formula above exposed the following sampling sizes for each department;

Table 1 Departments and their Sampling Sizes with Percentages.

ACADEMIC UNITS	N	n	Percent
Faculty of Arts and Sciences	54	30	55,5
Faculty of Engineering	149	47	31,5
Faculty of Economic and Administrative Sciences	19	15	78.9
Faculty of Education	31	21	67,7
Other Departments	61	32	52,4
SUM	**314**	**145**	**46,2**

2.2 Data Collection

In this study a survey questionnaire developed by using an item pool was used to gather information from the subjects. This questionnaire is made up of three parts. The first part of the questionnaire tries to gather personal data from the subjects. The second part includes Kay's semantic scale which was also used in Gilmore's study (1998). Semantic scales are summated rating scales like Likert type scales. These scales include seven categories from one to seven. The median category stands as neutral.

The Likert type scale of the questionnaire includes items selected from an item pool. This item pool included items from Loyd & Gressard's (1985) Computer Attitude Scale (CAS), from Faculty Attitudes towards Information Technology (FAIT) questionnaire, which was employed by Gilmore (1998). The item pool also included items from Deniz's (1994) Computer Attitude Scale-Marmara (CAS-M). The item pool was formed with the help of experts, and by using the outcome of the first phase of the study, which were explained in 1.2 in details. While choosing the items from the questionnaires above, the items concerning CAI were taken into consideration. The questionnaire thus formed, was applied to 40 faculty of the same university. After gathering the data, factor analysis was executed to see if the scale was multidimensional or not. (Balcı, 2001:274) As Büyüköztürk (2002:117) mentions, factor analysis is a statistical technique that gathers the variables which measure the same structure or feature; so that the measurement is conducted by using less factors.

Table 2 Factor Loadings of the Items in the Scale

(The blank cells represent factor loadings less than .30)

	FACTORS		
	Component 1	***Component 2***	***Component 3***
Item 20	.87		
Item 21		***.43***	***.50***
Item 22	.80		
Item 23	***.38***	***.43***	
Item 24		.85	
Item 25	.32		.80
Item 26	.78		
Item 27			.86
Item 28		.75	
Item 29	***.54***		***.59***
Item 30	.74		
Item 31	***.43***		***.32***
Item 32		.79	.43
Item 33	.41		.70
Item 34		.82	.34
Item 35	.39		.69
Item 36	.84		
Item 37			.75
Item 38		.84	.34
Item 39			.74

2.3 Data Analysis

After the confirmation of the attitude scale's reliability and validity, it was applied to the previously mentioned sample population in the first semester of 2004-2005 academic years.

Since Likert type scales are summated scales (Balcı, 2001:137), each subject gets a score from such scales. In such scales, there are items regarding both positive and negative attitudes. While scoring positive items the option *totally agree* is scored as

five; whereas in negative items, the same option gets the lowest score i.e. one (*ibid*). Furthermore, the subject's choice among five scores for an item is multiplied with the item's factor loading. (Bailey, 1997, in Balcı, 2001:153) For instance, the factor loading of 21st item in the questionnaire of this study is 0.878. If a subject scores this item as *strongly agree* (five), this score is multiplied by 0.878 (5 x 0.878= 4.39). The same procedure is executed for all the other items. At the end, the sum of all the items' scores calculated in this way, gives the total score of the subject.

During the statistical process, the software package program SPSS 10.0 was used. Since the scale used in this study tries to determine attitudes in a multifaceted way, certain statistical techniques had to be applied. These techniques were correlation, chi-square, t-test and one-way ANOVA. The *p* value, as it is a common tendency in social sciences (Balcı, 2001:235), was taken as 0.05.

When measuring correlation, the aim is "… investigating the existence and the degree of a relationship between two or more quantitative variables. …The degree of relationship is expressed in correlation coefficient."

Chi-square test is a nonparametric statistical technique that is frequently used in descriptive studies. It is often used to determine relationships between subjects' demographic data and their answers to certain questions concerning their attitudes and opinions; thus the research questions can aim at determining relationships or differences. (Büyüköztürk, 2002:143)

T-test is another statistical technique which "… is used to calculate the degree of significance of two means at a selected probability level." In other words, "T-test for independent samples is used to determine whether the differences between the means of the samples are significant or not" (Büyüköztürk, 2002:143). So it is easy to see that, t-test is suitable if two groups' means are compared. However, if the groups are more than two, another statistical technique, one-way ANOVA, is to be employed. One-way ANOVA (F test) tests the differences between more than two groups. (Ergün, 1995:173)

3. DISCUSSIONS OF RESULTS

According to the results of this study, faculty attitudes towards CAI at the University of Gaziantep are positive. In addition to this, these attitudes do not change according to faculty's *departments, gender, teaching experience, and proficiency level in English*, which means that these items (department, gender, teaching experience, proficiency level in English) have no effects over faculty attitudes. However, the results indicate that faculty attitudes towards CAI in subscales *computers as facilitators in education* and *negative effects on education* change according to their prior education about computer literacy. It is surprising that, subjects who have prior education concerning computer literacy do not see computers as a facility in education. Moreover, the same subjects think that computer might have some negative effects over education. Another unexpected result of the study is that there is statistically no significant difference between male and female faculty concerning their proficiency level in using computers because this result contradicts with the data collected during the first phase of the study (see 1.2).

When it comes to subject's prior education in computer use there is statistically no significant difference between male and female faculty. However, according to the results, there is a significant difference between male and female faculty concerning interest in computers and their confidence about CAI. These results justify the data collected before the study, which was mentioned in 1.2. Therefore, it wouldn't be a presumptuous claim that there is a strong gender gap concerning CAI.

According to the results of the study faculty attitudes towards CAI do not change according to their departments. This outcome is comparable to Chin's study in 1999. Similar to the results of his study, subjects of the current study showed very positive attitudes towards CAI. Thus, it becomes clear that divisions of the faculty cannot be counted as a factor determining these attitudes.

Another outcome of the study is that faculty attitudes towards CAI do not change according to their sexes. Both female and male faculty have positive attitudes towards CAI. This result reveals that gender is also not a factor determining faculty attitudes towards CAI. Research results concerning gender differences in computer attitudes vary. The result of this study concerning the issue contradicts with Yuen and Ma's study (2002), because in their studies they determined gender differences in computer acceptance. However, the result is consistent with the outcome of Deniz's study (1994),

as he could not determine any gender differences concerning computer attitudes. Moreover, this result is also consistent with Nash's study (1997) as he also could not find out any gender differences in relation to computer attitudes.

Another surprising outcome of the study is that faculty attitudes towards CAI do not change according to their proficiency levels in English. In other words, faculty's proficiency levels in English do not have any effects on attitudes towards CAI.

One of the important outcomes of the study is that faculty attitudes towards CAI in subscales *computers as facilitators in education* and *negative effects on education* change according to their background education in using computers. However, for the *acceptance* subscale the situation is not the same. This result reveals that faculty attitudes about two subscales (negative effects of computers on education and computers as facilitators) show significant differences according their background education. Education about computers brings on positive attitudes. This result is consistent with the results of Gilmore's (1998) study. As she found out that education has a positive effect on computer related attitudes. This outcome makes it clear that faculty of University of Gaziantep need training about CAI so that they develop positive attitudes.

The following result reveals that there is statistically significant difference between male and female faculty concerning their interests in advances in CAI. This means that male faculty are more interested in advances in CAI than female faculty. Thus, it becomes clearer that a gap between genders do exist concerning computers.

Another result shows us that there is statistically significant difference between male and female faculty concerning their confidence about CAI. Male faculty feel more confident with computers. This is one of the important results of the study. It is consistent with Shashaani & Khaili's study (2001), as in their study they determined gender differences with respect to confidence about computers. Again, this result is consistent with the results of Temple & Lips's study (1989). Because their study revealed that males were more comfort and more confident with computers. Consequently, the gap between genders is once again approved.

The next result reveals that there is a strong relationship between faculty's attitudes towards CAI and their attitudes towards computers in general. This result is

consistent with the results of Troutman's study (1991). Because in his study he found out that faculty who feel secure in their own personal use of computers also feel positive towards CAI. Thus, helping faculty attitudes towards computers improve will also help their attitudes towards computers in general improve.

When it comes to gender gap regarding computers, the result reveal that there is no difference between female and male faculty concerning their proficiency levels in using computers and their background education about computers. However, the latter does not mean that both female and male faculty have high level of education. Both groups appear to have no or little education concerning computers. Yet, male faculty feel more confident about using computers in their lessons, and they are more interested in advances in CAI. These results reveal that a gender gap concerning computer do exist. Thus, it can be claimed that female faculty need training more about the subject.

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