Research Paper E-ISSN No : 2455-295X | Volume : 2 | Issue : 5 | May 2016

COMPUTER ATTITUDE OF PROSPECTIVE TEACHERS IN RELATION TO SELF-EFFICACY

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ABSTRACT

The study was intended to predict Computer Attitude of prospective teachers of government aided and private college on the basis of their Self-Efficacy. The sample consisted of total 200 students; 100 students being selected randomly from each government aided and private college of Ludhiana city. Computer Attitude Scale (CAS) by Khatoon and Sharma (2011) and Self-Efficacy Scale (SES) by Mathur and Bhatnagar (2012) were used to collect the data. The results of the study showed significant positive relationship between Computer Attitude and Self-efficacy of prospective teachers, also between Computer Attitude and Self-efficacy of prospective teachers studying in government aided college and private college.

KEYWORDS: Computer Attitude, Self-Efficacy, Prospective Teachers.

1. Introduction

Computer education forms a part of the school and college curricula, as it is important for every individual today to have the basic knowledge of computers. The information and communication technology has become a tool for enhancing student's learning, teacher's instruction and institutional administration (Kirschner&Woperies, 2003).However, in integrating computers in higher education, positive attitudes toward computers and high computer self-efficacy help people use computers and learn computer skills (Busch, 1995).Thus, experienced and student-teachers need to be confident to effectively use these technologies in their teaching (Kyriakidou, Chrisostomou& Bank, 2000). Monitoring user's attitudes towards computers should be a continuous process if computers are used as a tool for teaching and learning (Sam, Othman &Nordin, 2005). Attitude is a major predictor of future computer use and it's rightly said that "attitude determines altitude". Earlier studies have shown that more positive attitude towards computers were associated with higher levels of computer experience thereby establishing a link between teacher's attitude and their efficiency to use computers (Dyck&Smither, 1995). Although some teachers are enthusiastic about using computers, others are more apprehensive. Lack of confidence and attention to computer use leads to reluctance to use of computers by the students and teachers (Diem, 1989; Kumar & Kumar, 2003). Attitude towards computers are expected to influence person's self-efficacy. According to some researchers attitude in turn constitutes other parameters like self-efficacy (Rovai& Childress, 2002), training (Tsitouridou&Vryzas, 2003), gender (Sadik, 2006) and knowledge about computers (Yuen, Law & Chan, 1999).Thus, seeing the present scenario, there is a need for teacher educators to provide conducive environment for pre-service teachers to experience success in using the computers, with a view to allow pre- service teachers to gain competence and confidence in using computers for teaching and learning.

2. Attitude

Attitude refers to one's positive or negative judgment about a concrete subject. In general, attitudes can be defined as "a learned predisposition to respond in a consistently favourable or unfavourable manner with respect to a given object" (Fishbein & Ajzen, 1975). Loyd and Gressard (1984) divided the construct 'attitudes' into four different variables, which are: 1) computer liking; 2) computer anxiety; 3) computer confidence, and: 4) perceived usefulness of the computer. The multidimensionality concept of attitude towards computers is also supported by Wang, Chen and Shi (2007).

3. Computer Attitude

Computer Attitude evaluation usually encompasses statements that examine users' interaction with computer hardware, computer software, other persons relating to computers, and activities that involve computer use. Computer Attitude has been defined as a person's general evaluation or feeling of favour or antipathy toward computer technologies and specific computer related activities (Smith, Caputi & Rawstorne, 2000).Computer attitudes are influenced by different variables like knowledge about computers (Derscheid, 2003), gender (Bebetsos & Antoniou, 2009), liking (Yildirim, 2000) and computer experience (Deniz, 2007). In most cases, many of these factors interact with one another having an impact on attitude towards computers.Abidin, Pour-Mohammadi, Shoar, See and Jafre (2011) highlighted that computer attitude relates to behaviour of the user while interacting with the computer hardware, software, users and activities related to the usage of the computer.Users whom believe that computers are useful to them will have a positive attitude towards computer (Yushau, 2006).Thus, a person's attitude towards computers and related technology could determine his/her performance with the technology and the satisfaction he/she draws with the experience.

4. Self- Efficacy

Self-efficacy reflects that individuals have about their ability to use systems effectively. Individuals with high self-efficacy work harder and longer than individuals with low self-efficacy (Wood & Bandura, 1989 a).Bandura (1986) defined self-efficacy as "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances".Oliver and Shapiro (1993) have described that self- efficacy was concerned with self-capability, whereas self-esteem was concerned with self- worth. Kinzie, Delcourt, and Powers (1994) defined self-efficacy as an individual's confidence in his or her ability, which may impact the performance of tasks: "Self-efficacy reflects an individual's confidence in his/her ability to perform the behaviour required to produce specific outcome and it's thought to directly impact the choice to engage in a task, as well as the effort that will be expended and the persistence that will be exhibited."The term self-efficacy can be extended to particular domains, including the use of computers. Computer self-efficacy is a specific type of self-efficacy.Specific self-efficacy is defined as belief in one's ability to "mobilize the motivation, cognitive resources, and courses of action needed to meet given situational demands" (Wood & Bandura, 1989 b). Compeau and Higgins (1995) defined computer self-efficacy as "a judgment of one's capability to use a computer". Attitudes towards computer technologies are associated with a concept known as computer self-efficacy (Delcourt& Kenzie, 1993), which, in turn, helps in understanding the frequency and success with which individuals use computers.Thus, self-efficacy is a person's belief in his or her ability to complete a future task or solve a problem. People with higher self-efficacy will make all efforts to complete a task leading to their better performance whereas people with low self-efficacy generally tend to avoid a task leading to their poor performance.

5. Review of related literature

5.1 Computer attitude and self-efficacy

Earlier studies have also indicated that self-efficacy was associated with attitudes toward computers and Internet (Delcourt & Kinize, 1993; Zubrow, 1987) which, in turn, helps in understanding the frequency and success with which individuals use computers (Bandura, 1986, Compeau& Higgins, 1995).

Yalcinalp (2005) examined the relationship between self-efficacy, performance and users attitudes toward computers and Internet. The participants were the 88 freshman students of the computer literacy course at the Faculty of Commercial Sciences, Turkey. Results indicated significant relations between the attitudes, self-efficacy and performance of students on the course. It was seen that there was a high and positive relation between students' attitudes toward computers and self-efficacy and also between students' performance and their self-efficacy in computers. Thus, student's self-efficacy is important in predicting their attitudes toward computers.

Wu and Tsai (2006)conducted a study to explore university students' attitudes and self-efficacy toward the Internet and find the relationships between them. The sample of this study included 1,313 students, coming from three universities in Taiwan. The result of the study showed that students' Internet attitudes were highly correlated with their Internet self-efficacy. The results in this study seemed to reveal that students' attitudes toward the Internet could be viewed as one of the important indicators for predicting their Internet self-efficacy.

Torkzadeh, Chang and Demirhan (2006) developed a contingency model of com-

puter and internet self-efficacy to study how users' attitude towards computer and computer anxiety influenced the computer and internet self-efficacy. The study was conducted on 347 business undergraduates at a large state university in the south-west region of United States. Measures of user attitude towards computers, computer anxiety, computer self-efficacy and internet self-efficacy were studied at both the beginning and end of computer course. Results showed that respondents with favourable attitude towards computers improved their self-efficacy significantly than respondents with unfavourable attitudes. The interaction between user attitude towards computers and computer anxiety was significant for computer self-efficacy scores but not for internet self-efficacy scores.

Abbitt and Klett (2007) studied the influences on pre-service teachers' self-efficacy in technology integration and factors that influence their attitudes towards it. One hundred and eight pre-service teachers completed a pre- and post- survey. These teachers were enrolled in one of four technology integration education courses from two different institutions. Results showed that perceived comfort level with computer technology was a significant predictor of self-efficacy beliefs in regards to technology integration.

Agbatogun (2010) examined the relative and combined contributions of computer anxiety, self-concept and gender to teachers' attitude towards the use of interactive computer technologies. 454 Nigerian teachers constituted the sample. The findings revealed that the combination of the three independent variables significantly predicted the independent variable. Although self-concept and computer anxiety significantly predicted the teachers' attitude towards Interactive Computer Technologies but gender did not make any significant contribution to the prediction of the dependent variable.

Zhang and Espinoza (1998) studied relationships among computer self-efficacy, attitudes toward computers and desirability of learning computer skills in college students. Results showed that these factors were important predictors of students' acquiring knowledge about computer technologies. Students' self-recognition of usefulness of computers and their perception of advanced levels of computer technologies were significant predictors in deciding their desirability of learning computer skills.

Igbariaand Iivari (1995) examined the effect of self-efficacy, belief in one's capabilities of using a computer in the accomplishment of specific tasks, on computer usage. A survey of 450 microcomputer users in Finland found strong support for the conceptual model. In accordance with TAM, perceived usefulness had a strong direct effect on usage, while perceived ease of use had indirect effect on usage through perceived usefulness. Self-efficacy had both direct and indirect effects on usage, demonstrating its importance in the decision to use computer technology. It also had a strong direct effect on perceived ease of use, but only an indirect effect on perceived usefulness through perceived ease of use. Computer experience was found to have a strong positive direct effect on self-efficacy, perceived ease of use, perceived usefulness and usage. Organizational support and computer anxiety had only indirect effects on usage, mainly through perceived usefulness.

Albion (2001) studied teachers' self-efficacy for personal computer use and how it contributes to their using computers in their teachings. A pre- and post-questionnaire was completed by 89 B.Ed. students. Results showed that the most significant factor contributing to self-efficacy in computer use was the amount of time spent using computers which remained consistent with the self-efficacy theory.

Milbrath and Kinzie (2000) studied the effects of computer training that prospective teachers received through their teacher preparation at the University of Virginia. Findings showed that both perceived computer comfort and perceived computer usefulness showed significant change between the first and last time the participants completed the survey. A significant positive effect was found in perceived self-efficacy with all computer technologies that these prospective teachers received. Thus, prospective teachers' perceived self-efficacy with Word processing and e-mail use was higher as these were used more frequently whereas the perceived self-efficacy levels were the lowest with database management software and statistical packages which were used least frequently.

Paraskeva, Bouta and Papagianni (2008)examined the relationship between Greek secondary teachers and general self-efficacy, self-esteem and computer self-efficacy, as well as modern technology integration. 286 secondary education teachers from various subject areas were taken in this study.The results showeda positive correlation between general and computer self-efficacy but no significant correlation between self-concept and computer self-efficacy. Findings also showed a strong, positive correlation between teachers' subject area, prior experience in computer and software use, and computer self-efficacy; The strongest being prior experience. Finally, this study proved that using software for educational purposes contributes substantially to an increase in computer self-efficacy.

6. Emergence of the problem

Nowadays, computers are common tools in most schools and are being used increasingly in all subject areas.Despite the increasing acceptance and use of computers in schools, the extent to which it is optimised depends on teachers having a positive attitude towards it (Huang &Liaw, 2005).Many students and teachers still encounter difficulties with the use of computers due to lack of confidence and efficacy in using them. Thus, in the limelight of above all, present study was taken to study the computer attitude of prospective teachers in relation to their self-efficacy. The review of literature cited above shows that majority of the studies between computer attitude and self-efficacy have been conducted in foreign countries like Turkey (Yalcinalp, 2005), Taiwan(Wu and Tsai, 2006), U.S.A (Torkzadeh, Chang & Demirhan,2006), Nigeria (Agbatogun, 2010), Virginia (Milbrath&Kinzie, 2000), Greek (Paraskeva, Bouta&Papagianni ,2008)and Finland (Igbaria&Iivari, 1995). Thus, one way of filling the gap created in knowledge in this area is to examine the computer attitude of prospective teachers in relation to their self-efficacy thereby enhancing their positive attitudes towards the use of computers and other related technology ending up in quality teaching and learning.

7. Objectives

- To investigate the significance of relationship between Computer Attitude and Self-Efficacy of prospective teachers.
- To study the significance of relationship between Computer Attitude and Self-Efficacy of prospective teachers studying in government aided college.
- To investigate the significance of relationship between Computer Attitude and Self-Efficacy of prospective teachers studying in private college.

8. Hypotheses

H_{01a} There will be no significant relationship between Computer Attitude and Self-Efficacy of prospective teachers.

H_{01b}There will be no significant relationship between Computer Attitude and Self-Efficacy of prospective teachers studying in government aided college.
H01cThere will be no significant relationship between Computer Attitude and Self-Efficacy of prospective teachers studying in private college.

9. Sample

Sampling is an essential part in the field of research providing generalizations on the basis of small proportion of the population and produces precise and accurate results. Two stage randomization technique was used in this study. Sample consisted of total 200 students; 100 students being selected randomly from each government aided and private college of Ludhiana city.

10. Tools

- Computer Attitude Scale (CAS) by Khatoon and Sharma (2011).
- Self-Efficacy Scale (SES) by Mathur and Bhatnagar (2012).

11. Results and Discussion

11.1 Relation between Computer Attitude and Self-efficacy

Karl Pearson's coefficient of correlation was used to find the relation between Computer Attitude and Self-efficacy for the total sample taken for the study which is shown in the table below:

Table 1 Relation between Computer Attitude and Self-efficacy of prospective teachers

(N= 200)

Variables	r
Computer Attitude with Self-efficacy	0.626*

**Correlation is significant at 0.01 level (0.182)*

Table 1 reveals that the value of correlation between Computer Attitude and Self-efficacy of prospective teachers is 0.626. This value is positive and significant ($p<0.01$). Therefore, it can be concluded that Computer Attitude has significant positive relation with Self-efficacy among prospective teachers. Thus, hypothesis H01a which states that "There will be no significant relation between Computer Attitude and Self-efficacy of prospective teachers", is rejected.

Table 2 Relation between Computer Attitude and Self-efficacy of prospective teachers studying in government aided college

(N = 100)

Variables	r
Computer Attitude with Self-efficacy	0.545*

**Correlation is significant at 0.01 level (0.256)*

Table 2 reveals that the value of correlation between Computer Attitude and Self-efficacy of prospective teachers studying in government aided college is 0.545. This value is positive and significant ($p<0.01$). Therefore, it can be concluded that Computer Attitude has significant positive relation with Self-efficacy among prospective teachers studying in government aided college. Thus, hypothesis H01b which states that "There will be no significant relation between Computer Attitude and Self-efficacy of prospective teachers studying in government aided college", is rejected.

Table 3 Relation between Computer Attitude and Self-efficacy of prospective teachers studying in private college

(N = 100)

Variables	r
Computer Attitude with Self-efficacy	0.710*

**Correlation is significant at 0.01 level (0.256)*

Table 3 reveals that the value of correlation between Computer Attitude and Self-efficacy of prospective teachers studying in private collegeis 0.710. This value is positive and significant ($p<0.01$). Therefore, it can be concluded that Computer Attitude has significant positive relation with Self-efficacy among prospective teachers studying in private college. Thus, hypothesis H01c which states that "There will be no significant relation between Computer Attitude and Self-efficacy of prospective teachers studying in private college", is rejected.

12. Discussion

The result is well supported by the studies conducted earlier by Yalcinalp (2005), Abbitt and Klett (2007), Milbrath and Kinzie (2000), Igbaria&Iivari(1995)and Anderson, Groulx and Maninger (2011). Studies indicated that students having high self-efficacy are more motivated to involve in activities related to computers. Also, such students could more easily handle with the problems related to using computers (Karsten& Roth, 1998).

13. Conclusions

- There exists positive and significant relationship between Computer Attitude and Self-efficacy of prospective teachers.
- There exists significantpositive relationship between Computer Attitude and Self-efficacy of prospective teachers studying in government aided college.
- There exists positive and significant relationship between Computer Attitude and Self-efficacy of prospective teachers studying in private college.

14. Educational Implications

The results of the study reveal significant positive relationship between Computer Attitude and Self- Efficacy. It is thus suggested that to improve the Attitude towards Computer of Prospective Teachers, conditions conducive for the development of Self- Efficacy must be created. The improvement in Self- Efficacy will lead to the improvement of Computer Attitude.

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