

# **DEVELOPMENT OF AN ATTITUDE SCALE TO MEASURE COMPUTER APPLICATION OF SECONDARY SCHOOL TEACHERS**

**Samson R. Victor  
S. Srikanta Swamy**

*This paper explains the procedure of developing and standardising an attitude scale constructed by the authors to measure the computer application of secondary school teachers. The scale has been constructed by using Likert's method of summation to obtain a five point judgment on each item. After critical study related to computer application, four dimensions namely personal, affective, teaching- learning and usage confidence were selected for constructing the tool. The pilot study had 54 items, related to all the four dimensions mentioned above. The newly constructed scale had face validity, content validity and construct validity and reliability.*

## **INTRODUCTION**

The use of computers in education opens a new area of knowledge and offers a tool that has the potential to change some of the existing educational methods. The teacher is the key to the effective exploitation of this resource in the educational system. As computer use continues to increase in society, teacher educators must also equip themselves for the use of computers within the classroom. This involves all levels of education ( McCannon & Crews 2000). Supportively, UNESCO (2002) also stated that in order to ensure that all countries, both developed and developing, have access to the best educational facilities necessary to prepare young people to play full roles in modern society and to contribute to a knowledge nation. In many developed and developing countries, nearly all schools are getting equipped with the infrastructure to conduct computer mediated teaching and learning. But the success, of any initiative to implement technology in an educational programme depends strongly upon the support and attitude of teachers involved. One of the major reasons, for studying teachers' attitude towards computer application is that it is a major predictor for future computer use in the classroom (Myers & Halpin 2002). Supportively, Timothy (2008) found that there was a significant association between years of computer use, level of confidence, and computer attitudes. Kumar and Kumar (2003) also reported that most teachers believe that the amount of computer experience has a positive effect on attitude towards computers. Today, there is generally a widespread feeling that teachers, especially at the secondary school level, are in a state of unrest due to the fast growth of technology and varied task in implementing computers in teaching and learning process. The implementation of computers in teaching and learning process being a recent evolution in the 90's, still remains in the evolving state in the state of Karnataka and grievances of teachers in implementing are one and more. Hence, the authors decided to construct an attitude scale to measure computer application, so that the newly constructed scale may contain all the factors pertaining to computer application of secondary school teachers.

## **METHODOLOGY**

Normative survey was employed for the study.

### **Sample**

For the pilot study, the sample consisted of 20 secondary school teachers of Bangalore District, Karnataka State, selected by using simple random technique.

### **Instrument**

The first part of the scale is captioned by general information, which includes the variables: gender, age, experience, qualification, subject handling, type of school, locale and type of management. The second part of the scale was framed after reviewing many related studies done in the field of computer application both in India and in other countries. Following dimensions, reported as positively or negatively correlated to attitude, were selected.

### ***Personal***

Teacher's knowledge and skill related to computer application provides adequate opportunities for professional achievement and advancement related to computer application in teaching. The inadequate knowledge and skill may cultivate a negative outlook towards computer application. Hence, statements regarding this dimension were added in the tool.

### ***Affective***

One of the key factors associated with the attitude of computer application was reported to be the affection towards computers. Hence, positive and negative statements were constructed through careful procedure belonging to this dimension which measures feeling towards computers.

### ***Teaching and Learning***

Teaching and learning process is a highly creative task, which involves variety and novelty. Computer application is enriching the novelty and interest in teaching and learning process. Hence, statements measuring this dimension were included in the tool to find out whether teaching and learning is a key factor in identifying the attitude.

### ***Usage Confidence***

The fear of doing mistakes may create unnecessary stress and fear in the minds of teachers and by this, a teacher may be unable to apply the computer technology effectively. Hence, statements related to usage confidence associated with computer application were included.

While selecting and editing statements, the statements of the following types were excluded, which : (a) refer to the past rather than the present; (b) are factual or capable of being interpreted as factual; (c) may be interpreted in more than one way; (d) are irrelevant to the psychological object under consideration; (e) are likely to be endorsed by almost everyone or by almost none; (f) lack clarity, directness and simplicity; (g) include words that may not be understood by those who are to be given the completed scale; and (h) are double negatives and statements which contain universals such as always, none and never and thus resulting in ambiguity. After a careful scrutiny of the statements by the experts, 54 statements (26 favourable and 28 unfavourable) were selected for the pilot study.

## **PILOT STUDY**

After constructing the computer application scale, a pilot test was conducted on a random sample of 20 higher secondary school teachers in Bangalore district, Karnataka State, India. The test was conducted with a view to find out the reliability and validity of the tools and also to eliminate any ambiguity so that teachers do not have any difficulty in responding to the items in the computer application scale. Scoring was done on the five point scale as suggested by Edwards. Total score for each subject was calculated. The sum of the item credits represents the individual total score.

## **SCORING**

The scale was constructed by the use of Likert's methods of summation to get a five point judgment on each item. Against each statement, five alternative responses, namely, "Strongly Agree" (SA), "Agree" (A), "Undecided" (U), "Disagree" (D) and "Strongly Disagree" (SD) were given. Weights of 5,4,3,2 and 1 were given for favourable statements in the order of their favourableness and for unfavourable statements, scoring system is reversed. Thus, if one chooses 'Strongly Agree' response for a favourable statement, s/he gets a score of '5' and for the same response; if the statement is unfavourable one gets a score of '1.' Only for the 'Undecided' response, one gets always a score of '3' whether a statement is favourable or unfavourable. An individual's score in this scale is the sum total of the scores for all the statement by the subject (Summated Ratings).

## ITEM ANALYSIS

Cronbach's Alpha was used to assess the degree of internal consistency among all sets of items. Then the task value was calculated. Items with 'r' values less than 0.30 were rejected, According to de Vaus (2004), anything less than 0.30 is a weak correlation for item analysis purposes. As many as 43 statements having the 'r' value greater than 0.30 were chosen in order to form the final scale. The scores in the final scale of computer application ranged from 0 to 215 in the direction of increasing levels of computer application. An individual's score in this scale is the sum total of the scores for all the statements by the subject. (Summated ratings). The higher the score in this scale, the greater will be the attitude towards computer application.

## RELIABILITY AND VALIDITY

The scale had the 'Universe of Content' as it included statements from all the selected domains of computer application namely personal, affective, teaching learning and usage confidence. Due weightage was given to all the domains while selecting items. The scale had 43 statements representing the universe of content. Hence, it had face validity. It also had construct validity as items were selected having the 'r' values more than 0.30 (de Vaus 2004). The scale was given to experts in the field of education and they agreed that the items in the scale were relevant to the objectives of the study. Hence, it had content validity also. The reliability of the split half test was found to be 0.925 by the use of Spearman - Brown prophecy formula. The reliability of the whole test was found to be 0.910.

## CONCLUSION

The attitude scale to measure computer application developed and standardised by the authors can be used to study the computer application of secondary school teachers to find out and analyse various factors associated with positive or negative attitude, so that necessary steps can be taken to create an environment in which the emphasis can be given to enhance the attitude of teachers in using computers in their teaching and learning process.

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## Authors

**Mr. Samson. R. Victor, Asst. Prof., Dept. of Education, Christ University, Bangalore-560 029.**

**Dr. S. Srikanta Swamy, Addl. Director, Centre for Research, Christ University, Bangalore-560 029.**