

Tool to Measure Attitude towards Computer Application

P. J. Joshi¹ and N. B. Chauhan²

¹ Planning officer, Office of the Director of Research, AAU, Anand

² Professor and Head, Dept of Extn. Edu., BACA, AAU, Anand

Email. : praful_joshi2003@yahoo.co.in

ABSTRACT

Realizing modern need of research on current topics, researchers have developed a scale to measure attitude of the extension educationists towards computer applications. Among the techniques available for construction of scale, the methodology suggested by Likert (1932) and Edward (1957) was used in for the construction of scale and for ascertaining the response of the scale. The technique chosen to construct the attitude scale was "Scale Product Method" which combines the technique of Equal Appearing Interval Scale of Thurston (1946) for selection of the items and Likert's techniques of summated rating for ascertaining the response on the scale. The scale contains total 14 statements viz. 1. Computer helps in creating desire among agricultural learners to learn new subjects, 2. Use of Computer in agricultural extension education is wastage of money, 3. Anyone can learn to use a computer if they are patience and motivated, 4. I get a declining feeling when I think of trying to use a computer for extension education, 5. Computer application is useful to show demonstrated way of doing thing, 6. I avoid computers because they are unapproachable to extension education, 7. Computer presentation helps in explaining complicated topics in agricultural education, 8. I prefer getting information from a printed page instead of a computer screen, 9. The challenge of learning about computers for extension is exciting, 10. I like to do as little work with computers as possible related to extension education, 11. Gathering useful data for extension work can be simplified by using computers, 12. Computer application is not possible in agricultural extension education, 13. I am sure that with time and practice I will be as comfortable as I am in working by hand for extension education and 14. The frustration created by computer application in extension education is more troublesome than its significance. Out of these, statements no. 2, 4, 6, 8, 10, 12 and 14 are negative or unfavourable and remaining are positive or favourable statements. The co-efficient of reliability was calculated by the Rulon's formula (Guilford, 1954), which came to 0.8721. The responses can be collected on five points continuum viz. strongly agree, agree, undecided, disagree and strongly disagree with respective weights of 1, 2, 3, 4 and 5 for the unfavourable statements no 2, 4 and 6 and with the respective weights of 5, 4, 3, 2, and 1 for the favourable statements no 1, 3, 5, 7, 8, 9, 11 and 13.

Keywords: Computer application, Attitude scale

INTRODUCTION

Attitude refers to the degree of positive or negative feelings of an individual associated with any object (Thurstone, 1946). The introduction of computer application in the field of education, extension education and research has completely changed the conventional way of teaching and learning by modifying and making the enormous use of computer. In order to make the best use of our resources, it is essential that all persons engaged in such enterprise and especially the extension educationists should understand

adequately the dynamics and mechanism of computer application and provide the best possible services to the clients. Thus measuring their attitude towards computer application is very much needed. As there is no suitable tool available to measure this, the investigators decided to construct and standardize a scale to measure the extension educationists' attitude towards computer application. In the present study, attitude has been conceptualized as positive or negative feelings of extension educationists towards computer and value of its applications.

METHODOLOGY

To measure attitude scale towards computer application, researcher had developed and standardized attitude scale adopting appropriate statistical procedure. Among the techniques available, researcher used 'Scale product method' which combines the Turnstone's Technique of equal appearing interval scale for selection of items and Likert's Technique of summated rating for ascertaining the response on the scale as proposed by Eysenck and Crown (1949). To develop the attitude scale following procedure was used.

Item collection

The items of attitude scale are called statements. At the initial stage of developing the scale, 56 statements reflecting feelings of the extension educationists towards computer application were collected from relevant literature and discussion with experts of extension personnel. To decide relevancy a list of the statements was sent to 50 judges. They were requested to give response in terms of 'relevant' or 'non-relevant' for each statement included in the list. The responses for all the statements were collected personally and their relevancy in percentage was calculated. Primarily 50 statements which were found relevant to include in the attitude scale by more than 90 per cent of the experts were selected for the further procedure. Thereafter these statements were edited according to the criteria suggested by Edward (1957). From the 50 primarily selected statements, 41 unambiguous and non-factual statements were selected.

Item analysis

In order to judge the degree of importance of each statement more critically a panel of other judges was selected and their opinion was collected in terms of relevance of each statement on the five points equal appearing interval continuum from 'Fully Agree' to 'Fully Disagree'. 75 slips of the selected statements were handed over to the experts working in Department of Extension Education, Extension Education Institute, Directorate of Extension Education, Department of Statistics, Department of Economics, IT centre and other centers of Anand Agricultural University. Out of 75 experts, 50 experts returned list of the statements with their judgment, which was considered for the next step of analysis.

Determination of scale values

The five points of the rating scale were assigned score ranging from 1 for fully disagreement and 5 for fully agreement. Based on judgment, the median value of the distribution and the Q value for the statement concerned were calculated with the help of following formula.

$$S = L + \frac{0.50 - \sum P_b}{P_w} \times i$$

Where,

- S = The median or scale value of the statement
- L = Lower limit of the interval in which the median falls
- $\sum P_b$ = The sum of proportion below interval in which median falls
- P_w = The proportion within the interval in which median falls
- i = The width of the interval and is assumed to be equal to 1.0.

The inter-quartile range ($Q = Q_3 - Q_1$) for each statement was worked out for determination of ambiguity involved in the statements. Only those statements were selected, which median values were greater than Q value. Thurstone and Chave (Edwards, 1957) described criteria in addition to Q as a basis for rejecting statement in scales constructed by the method of the equal appearing interval. Accordingly when a few items had the same scale values, the item having lowest Q values were selected. Based on the scale values or say median and Q values, following 14 statements were finally selected to constitute attitude scale.

The selected 14 statements for final format of the attitude scale were randomly arranged to avoid response bias. Against each of 14 statements, there were five columns, representing a five point continuum of agreement or disagreement to the statements as adopted by Likert (1932). The five points continuum were strongly agree, agree, undecided, disagree and strongly disagree with weight of 5, 4, 3, 2 and 1, respectively for favourable or positive statements and with weight of 1, 2, 3, 4 and 5, respectively for unfavourable or negative statements. The final format of the scale is presented above.

Final statements for the development of Attitude scale towards computer application

No	Statement	SA	A	UD	DA	SDA			
1	Computer helps in creating desire among agricultural learners to learn new subjects. (+)								
2	Use of Computer in agricultural extension education is wastage of money. (-)								
3	Anyone can learn to use a computer if they are patience and motivated. (+)								
4	I get a declining feeling when I think of trying to use a computer for extension education. (-)								
5	Computer application is useful to show demonstrated way of doing thing. (+)								
6	I avoid computers because they are unapproachable to extension education. (-)								
7	Computer presentation helps in explaining complicated topics in agricultural education. (+)								
8	I prefer getting information from a printed page instead of a computer screen. (-)								
9	The challenge of learning about computers for extension is exciting. (+)								
10	I like to do as little work with computers as possible related to extension education. (-)								
11	Gathering useful data for extension work can be simplified by using computers. (+)								
12	Computer application is not possible in agricultural extension education. (-)								
13	I am sure that with time and practice I will be as comfortable as I am in working by hand for extension education. (+)								
14	The frustration created by computer application in extension education is more troublesome than its significance. (-)								
SA=Strongly Agree		A=Agree		UD=Undecided		DA= Disagree		SDA=Strongly Disagree	

Reliability of the scale

The split-half technique was used to measure the reliability of the scale. The 14 statements were divided into two equal halves as two separate sets with 7 odd numbered and 7 even numbered statements in order. These were administered to 25 respondents. Each of the two sets was treated as separate scale and obtained two scores for both the sets from the 25 respondents. Co-efficient of reliability between these two sets of score was calculated by Rulon's Formula (Guilford 1954), which was 0.8721. This value indicates that scale is reliable.

$$rtt = 1 - \frac{s^2 d}{s^2 t}$$

Where,

- rtt = co-efficient of reliability
- $\sigma^2 d$ = variance of those two differences
- $\sigma^2 t$ = variance of total score

Validity of the scale

The validity of the scale was examined for content validity determining how well content were selected by discussing it with specialists, of extension and academicians. Thus, the present scale satisfied the content validity.

Administering the scale

The final attitude scale was administered on the

selected sample of extension educationists working in SAUs of Gujarat. They were asked to express their reaction in terms of their agreement or disagreement for each item by selecting one of five response categories. The total attitude score for each extension educationist was obtained by adding scores of all the statements based on their responses and based on mean and S.D., the respondents were grouped into three categories viz., unfavourable attitude (below mean - 0.5 S.D.), neutral attitude (between mean \pm 0.5 S.D.) and favourable attitude (above mean + 0.5 S.D.). Maximum score one could receive was 70 and minimum 14.

REFERENCES

Edward, A.L. (1957). Techniques of scale construction. Appeton Century Crafts Inc., New York.

Eysenck, H.J. and S. Crown.[1949]. An experimental study in pinion attitude methodology. *International J. of Attitude Research*. 3: 47-86.

Guliford, J. P. (1954). Psychometric Methods. Tata McGraw-Hill Publication Co. Ltd., Bombay: 378-382.

Likert, R.A. (1932). A technique for the measurement of attitude scale. Psychology, New York, PP;140.

Thurston, L. L. (1946). The Measurement of Attitude *American J. of Sociology*. Chicago University Press, 39-50.