Scale to Measure the Farmers' Extension Service Commitment in Public and Private Extension

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Abstract

The farmers' extension service commitment determines the success of the extension service. In this direction, the research was designed with the objective of developing a scale to measure extension service commitment of clientele in public and private extension. A summated rating scale was developed through following stages : collection of items, relevancy test, item analysis, reliability and validity.

Farmers' commitment towards extension service as a synergetic to the overall success of extension efforts. Generally, it was reported that the clientele of public extension exhibited limited commitment towards service and mostly they are 'careless' about the service (Hansra and Adhiguru, 1998), because advise available at cent per cent free of cost. Further it is believed that privatization/ private extension service induces high commitment of clientele (Saravanan, 2001). The extension service commitment of the clientele will accelerate the effectiveness of extension service. Hence, an attempt was made to develop a scale to measure the extension service commitment of the public and private extension clientele.

Methodology

Operational definition of extension service commitment : It is operationally defined as the "degree to which a farmer has a strong belief and acceptance of extension services, is willing to exert considerable amount of benefit from the extension service and has a strong desire to continue with the extension service".

The method suggested by Likert (1932) in developing summated rating scale was followed through five stages, *viz.,* collection of items, relevancy test, item analysis, establishing reliability and validity.

Collection of statements : A large of statements on farmers' extension service commitment was collected from review of literature, discussion with extension experts, agricultural scientists and farmers. Care was taken to include approximately equal number of positive and negative statements. Those statements were carefully edited in the light of fourteen criteria suggested by Edwards (1969) and statements were revised, restructured to avoid ambiguity and duplication. Thus 21 statements representing farmers' extension service commitment were selected for further analysis.

Relevancy analysis : The selected 21 statements were mailed with appropriate instruction to 110 judges who were experts in the field of extension education. They were asked to check each of the statement carefully for being relevant or not relevant, using three point continuum, *viz.,* Most Relevant (MR), Relevant (R) and Not Relevant (NR). The judges were also requested to make necessary modifications and addition or deletion of statements, if they desired so. The judges considered for this purpose were the extension experts in the SAUs, ICAR Institutes, National Institute of Agricultural Extension Management (MANAGE), Hyderabad, National Institute of Rural Development (NIRD), Hyderabad and Indian Institute of Plantation Management (IIPM), Bangalore. The responses were received from 74 judges (67.27 %) in time. The relevancy score for each statement was worked out by using following formula:

i) *Relevancy percentage (RP) :* Relevancy percentage was worked out by summing up the scores of Most Relevant (MR) and Relevant (R) categories, which was converted into percentage.

$$\text{Relavancy percentage} = \frac{\text{More Relevant responses} \times 2 + \text{Relevant responses} \times 1}{\text{Maximum possible score} \ (74 \times 2 = 148)} \times 100$$

ii) *Relevancy weghtage :* Relavancy weightage was obtained by the standard formula.

$$\text{Relavancy weightage} = \frac{\text{More Relevant responses} \times 2 + \text{Relevant responses} \times 1}{\text{Maximum possible score}} \times 100$$

iii) *Mean Relevancy score :* Mean relevancy score was obtained by the standard formula.

$$\text{Mean relevancy score (MRS)} = \frac{\text{More Relevant responses} \times 2 + \text{Relevant responses} \times 1}{\text{Number of judges responses}} \times 100$$

The statements having relevancy percentage of more than 75 per cent, relevancy weightage of more than 0.75 and mean relevancy score of more than one were considered for final selection of statements. Accordingly, 20 statements were selected and 1 statement was deleted. Further, in the light of suggestions, criticisms and comments of the judges the statements were modified and rewritten after the critical review and discussion with experts.

Item analysis : Item analysis is an important step while constructing a valid and reliable scale. The purpose of item analysis is to examine how well each item discriminating between respondents having high and low extension service commitment. For this, selected, relevant 20 statements were administered to 90 farmers who are the clients of the state department of agriculture, state department of horticulture, private agricultural consultancies, contract farmers of agribusiness firms and Non Governmental Organisations (NGOs) in non-sample area, Bangalore district. The responses were obtained on a three point continuum *viz.,* Agree (A), Some What Agree (SWA) and Dis Agree (DA) with a score of 2, 1 and 0 for positive statements and for negative statements reverse scoring

was adopted, *i.e.,* 0, 1, and 2 were given, respectively. The farmers' extension service commitment score for each respondent on the scale was computed by summing up of all the statements response.

Computing 't' values : For the purpose of evaluating the statements, the respondents were arranged in ascending order based on individual perception scores. After that, criterion group was selected, *i.e.,* 25 per cent of the respondents having the high score and 25 per cent of the respondents having the low score was taken

The 't' value for each statement was calculated by using the following formula ;

$$t = \frac{X_H - X_L}{\dfrac{\Sigma X^2_H - (\Sigma X_H)^2 / n + \Sigma X^2_L - (\Sigma X_L)^2 / n}{n \, (n-1)}}$$

Where,

X_H – The mean score on a given statement for high score group

X_L – The mean score on a given statement for low score group

ΣX^2_H – Sum of the squares of the individual scores in the high score group

ΣX^2_L – Sum of the squares of the individual scores in the low score group

n - number of respondents in each group.

The 't' value is a measure of the extent to which a given statement differentiates between the high score and low score groups. The 't' value equal to or greater than 1.960 ($n_1 + n_2 - 2$ df at 5 per cent) indicating the average response of high and low groups to a statement differs significantly. Thus 18 statements on farmers' extension service commitment (11 positive and 7 negative) with significant discriminating values were retained in the final scale (Table I).

Reliability : A good instrument should evoke responses that are valid and result nearly the same if

TABLE I

Standardized scale to measure the extension service commitment of farmers in public and private extension

Here is alist of extension service commetment statement Please record your response by putting a mark ($\sqrt{}$) in one of the three point response continuum *viz.,* Agree (A), Un Decided (UD) and Dis Agree (DA).

Sl. No.	Extension service commitment statements	Response categories		
		A	UD	DA
1.	I feel extension service is a boon to the farming community			
2.	I make use of extension services to a great extent			
3.	I am careful in getting extension service			
4.	I strongly believe that, extension service improve the income of the farmers			
5.	Extension service does not motivate to change the routine technologies			
6.	I find that, my farming needs and interests are best addressed by the extension service			
7.	There is nothing to be gained by receiving extension service			
8.	Extension service is a waste of money			
9.	I consider extension service is an essential input for agriculture development			
10.	Extension service is essential to receive latest farm technologies			
11.	I readily consult the extension agency for every agricultural related decisions			
12.	I apply the new technologies based on extension personnel's recommendation.			
13.	Extension service is no way better than our traditional agricultural knowledge.			
14.	Extension service is a waste of time			
15.	I continue my association with the extension service.			
16.	Advice from extension service is difficult to accept			
17.	Timely advice on farm problems not possible through extension service.			
18.	I am concerned about future and growth of the extension service organization.			

administered twice to the same respondents (Goode and Hatt, 1952). Kerlinger (1964) stated that reliability is the accuracy or precision of a measuring instrument. A scale is said to be reliable when it produce results with high degree of consistency, when administered to the same respondents. The co-efficient of reliability has been established on random sample of 60 respondents (clientele) from non-study area (Bangalore district).

The four different methods of estimating the reliability co-efficient of a test are : the test-retest method, the parallel form method, the split-half method and the method of rational equivalence. In this case, the test-retest method and the split-half method were employed.

The test-retest method : Scale consistency was measured by employing test-retest method. It refers

to the correlation between the same persons' score on the same set of items at two points in time. It indicates the stability and consistency of the item responses by the same respondents over time. This test was conducted on 30 respondents from non-study area (Bangalore district). After first administration of the scale on the same sample was conducted 30 days after the first administration. The Pearson-product moment correlation co-efficient (r) between two scores was worked out. The r-value was 0.87. As the co-efficient was very high, it may be said that the scale is a reliable tool to measure the farmers' extension service commitment.

The split -half method :   Split-half reliability used to measure the internal consistency. The items in the whole test are divided into two halves that is, 'odd' numbered items as one part and 'even' numbered items as another part. The score is found for individual for each half and scores of two halves are correlated to find reliability co-efficient. Reliability co-efficient was calculated on the basis of the 'odd-even' items. The half-test reliability co-efficient was calculated by using Pearson product moment correlation co-efficient, it was found to be ($r_{1/2 \ 1/2}$) 0.81.

The reliability co-efficient for the whole test (r_{11}) was estimated by applying 'Spearman-Brown Prophecy Formula' which was 0.89. As the co-efficient was relatively high, hence the test is a reliable to measure the farmers' extension service commitment.

Validity : Validity of a scale is the property that ensures the obtained test score as valid, if and only if it measured what it supposed to measure. A scale is said to be valid if it stands for one's reasoning. The attribute of technology scale does possess face validity, content validity and intrinsic validity as they have been established. The details of each of these are given below,

Face validity : "A scale is face valid particularly if it looks valid to a layman" (Lindquist, 1966). Face validity is best restricted to the fact that a test 'looks' valid, particularly to those who are unsophisticated in scale development. A more scientifically and professionally justifiable reason for face validity is to make it palatable to the examinee. If he feels that a scale is relevant, he is likely to have increased motivation in taking it and uniformly high motivation in an important testing condition. When the scale was presented to academicians, researchers in agricultural extension and psychology who were conversant with scale development and asked to express their opinion, they felt that the scale under construction looked valid. Hence, the scale had face validity.

Content validity :   Content validity indicates how adequate is the content of the scale, sampling the domain of which inferences are to be made. To restore such validity to the scale, an attempt was made to see that all the components of attributes of technology were embraced by it. Under each attributes, and adequate number of sample items were included which was proceeded by through and systematic gleanings on all the components of attributes of technology in books and journals. The instrument was subjected to the scrutiny, criticism and comment of the experts in agricultural extension and psychology. The scale was modified in the light of their comments and criticism. Thus, it may be said that the scale possessed content validity.

Intrinsic validity: Guilford (1954) defined intrinsic validity as "the degree to which a scale/test measures what it measures". This can also be stated in terms of how well the obtained scores measure the scale's true-score components. The validity is indicated by the square root of the proportion of true variance, which also known as the square root of reliability. Another name for this statistic is the index of reliability (Guilford, 1954). The intrinsic validity of the scale was ($\sqrt{}$) 0.87 = 0.93, which indicated that the scale possessed high intrinsic validity.

Method of scoring : The final scale consisting of 21 (10 positive and 11 negative) statements can be administered to the respondents on a three-point continuum *viz.,* Agree (A), Some What Agree (SWA) and Disagree (DA) with a weightage of 2, 1 and 0 for positive statements and reverse scoring system for negative statements. The overall possible maximum and minimum score ranges between 36 to zero.

Based on the scores obtained by the respondents, they were categoried into three categories ($\leq$ Low = mean $-1/2$ SD, Medium = Mean $\pm 1/2$ SD & High = $\geq$ Mean $+1/2$ SD) taking mean and standard deviation as measure of check.

The standardized scale will have practical applicability in ascertaining the extension service commitment of the farmers in public and private extension organisations.

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