

A SCALE TO MEASURE THE ATTITUDE OF KVK SCIENTISTS TOWARDS WORK IN RURAL AREA

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ABSTRACT

At present, KVK appears to be the most important institutional system at the district level for technological backstopping in agriculture and allied sectors. As the KVK has to work for the rural people and farming community of the whole district, one of the important factors for success of KVK is the attitude of its scientists towards working in rural area. Thus it is very important to study the attitude of the KVK scientists towards working in rural area. Keeping this in view, a scale has been developed to measure the attitude of KVK scientists towards working in rural area. Scale Product Method which combines the Thurston's technique of equal appearing interval scale for selection of the items and Likert's technique of summated rating was used to develop scale. The process started with identifying the aspect, collection of items followed by relevancy and item analysis and checking the reliability and validity for precision and consistency of the results. Total 25 statements were selected out of which 14 statements were finally retained in the scale for measuring the attitude of KVK scientists towards working in rural area. The developed scale was found reliable.

Keywords: Attitude, Scale, Rural Area, KVK, Scientist

INTRODUCTION

Agriculture is said to be the most important source of income for the farmers living in the rural areas. In India 70 percent of its rural households still depend primarily on agriculture for their livelihood, with 82 percent of farmers being small and marginal. In such situation, it is very important that the government and agriculture development entities work effectively in rural areas for their agricultural development and overall improvement. Indian Agriculture Council of India with its wide network of Krishi Vigyan Kendra (KVK) across the country is dealing in this area with intensive service oriented field professional activities, concerned with providing various kinds location specific agricultural technologies to build the bridge between farmers and farm scientists. Working in rural area by the agricultural scientists for welfare of farming community is thus a noble but the challenging task. The scientists with the positive attitude towards working in rural area can carry out his extension work effectively. Thus it is essential to measure the positive or negative feelings of the KVK scientists towards working in rural area. Keeping this in view, a standardized scale has been developed to measure the attitude of KVK scientists towards working in rural area.

OBJECTIVE

To develop and standardize a scale to measure the

attitude of KVK scientists towards working in rural area

METHODOLOGY

Among available techniques for the construction of the scales, the Thurston's Equal Appearing Interval Scale (1928) and the Likert's Summated Rating Scale (1932) are quite well-known. However, both these methods suffer from the limitations, the first one in getting discriminating response and second one in the selection of items. Thus, the technique chosen to construct the attitude scale was "Scale Product Method" which combines the Thurston's technique of equal appearing interval scale for selection of the items and Likert's technique of summated rating for ascertaining the response on the scale as proposed by Eysenck and Crown (1949). The procedures are followed as followed by Chauhan *et al.* (2022), Meenu *et al.* (2022) Yeragorla *et al.* (2021), Jagadeeswari *et al.* (2019) and Vinaya *et al.* (2018).

Steps in construction of attitude scale

Steps in development of the attitude scale explained as below:

Item selection

The items of attitude scale refer to statements related to attitude. Primarily, large number of statements reflecting attitude towards working in rural area were collected from

relevant literature and constructed through discussion with extension personnel. The statements thus selected were edited on the basis of criteria shown by Edwards (1957) and at last, 25 statements were selected as they were found to be non-ambiguous. The selected statements are presented in Table 1.

Judges rating of attitude statements:

Table 1: Selection of statements on the basis of ‘S’ and ‘Q’ value to measure attitude of KVK scientists towards working in rural area

Sr. No.	Statements	S Value	Q Value	Selection
1	I consider working in rural areas through KVK as an opportunity to serve the country.	1.28	0.93	Selected
2	Working in a rural area as a part of KVK provides more opportunities to practice a variety of skills.	2.46	1.07	Selected
3	Sanitization issues are a big problem while working in rural areas.	2.67	2.92	Not selected
4	Professional isolation is the big problem while working in rural areas.	1.33	1.14	Not selected
5	Working in rural area as a part of KVK provides more autonomy in work.	1.69	1.19	Selected
6	If other options are available, I shall never opt for working in rural areas.	2.43	1.88	Selected
7	Working in a rural area means being too isolated from family.	2.38	2.27	Not selected
8	Living in a rural area provides an enjoyable lifestyle.	1.86	1.64	Not selected
9	Rural workplace settings are providing friendly environments.	1.55	1.15	Selected
10	Working in rural area inhibits further advancement in my career.	3.83	1.58	Selected
11	I like to work permanently in rural area to work for rural peoples.	1.86	1.26	Selected
12	Working in rural area as a KVK scientist is not at all exciting to me.	3.00	2.11	Selected
13	Working with KVK for rural farmers means true service to humanity.	1.33	1.05	Selected
14	I enjoy doing work in rural areas as part of KVK.	1.62	1.31	Selected
15	Working in a rural area means being too isolated from friends.	2.92	1.96	Not selected
16	Poor recreational facilities in rural areas decrease work productivity.	2.38	1.92	Selected
17	Working pattern of KVK is not inspiring me to work in rural areas.	3.00	2.51	Not selected
18	There are people in rural areas that I could be friends with.	2.08	1.48	Selected
19	I like to face any odd situation to work for farmers in rural area.	1.62	1.36	Not selected
20	Working in rural area as a scientist is a stressful job.	2.72	2.74	Not selected
21	For working in rural area, I have to make big compromise with luxuries of life.	3.68	2.30	Selected
22	I am naturally oriented to live with rural people.	1.83	1.39	Selected
23	Working in rural area means spoiling precious years of life.	3.00	2.92	Not selected
24	I feel I can't derive job satisfaction while working in rural area.	2.83	2.90	Not selected
25	I feel fortunate to have the opportunity to work in rural area.	1.55	1.19	Not selected

In order to judge the degree of unfavourableness to favourableness of each statement on the five point equal appearing interval continuum, a panel of 50 judges was selected. The judges selected for the study comprised of extension educationists from State Agricultural Universities of Gujarat, ICAR as well as other extension personnel with considerable field experience.

Determination of scale and quartile value

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

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

Where,

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

To determine value of Q, two points measured were, the 75th (Q3) centile and 25th (Q1) centile. The 25th centile value was obtained by the following formula.

$$C_{25} = L + \frac{0.25 - \sum Pb}{P_w} \times i$$

Where,

- C_{25} = The 25th centile value of the statement
- L = Lower limit of the interval in which the 25th centile falls
- $\sum P$ = The sum of proportion below interval in which 25th centile falls
- P = The proportion within the interval in which 25th centile falls
- i = The width of the interval and is assumed to be equal to 1.0.

The 75th centile value was obtained by the following formula.

$$C_{75} = L + \frac{0.75 - \sum Pb}{P_w} \times i$$

Where,

- C_{75} = The 75th centile value of the statement
- L = Lower limit of the interval in which the 75th centile falls
- $\sum P$ = The sum of proportion below interval in which 75th centile falls
- P = The proportion within the interval in which 75th centile falls
- i = The width of the interval and is assumed to be equal to 1.0.

The inter-quartile range ($Q = C_{75} - C_{25}$) for each statement was worked out for determination of ambiguity involved in the statements which were presented in Table 1. Only those statements, whose median values were found greater than Q values were selected. Thurstone *et al.* 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. In this case statements no. 1, 2, 5, 6, 10, 18, 21 and 22 whose scale values were greater than Q values were selected in the first phase of selection of statement to include in the scale to measure attitude of KVK scientists towards working in rural area.

Accordingly when a few items had the same scale values, the items having lowest Q values were selected. As was displayed in Table 1 Here statement no. 4 and statement no. 13 have equal scale values of 1.33 but Q value in case of statement no 13 is 1.05, is smaller than Q value of statement no. 4, which is 1.14. Thus, statement no. 13 was finally selected. Similarly in case of statement no 9 & 25, 14 & 19, 9 & 11, 7 & 16 and 12, 17 & 23 have equal scale values, thus statements having smaller than Q value were statements no. 9, 14, 11, 16 and 12 respectively were finally selected to include in the scale. 14 statements were finally selected to constitute to measure attitude of KVK scientists towards working in rural area.

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 20 respondents. Each of the two sets was treated as separate scale and scores for both the sets from the 20 respondents were obtained. The coefficient of reliability was calculated by Rulon’s Formula (Guilford 1954), which came to **0.76**. Reliability is directly related to the length of scale when we split to odd and even number items. The reliability coefficient which has been calculated is the value of half size of the original scale. In case of finding reliability using split half method, researcher needs to apply correction factor for final value of reliability. In this scale it was found **0.86**.

Rulon’s Formula

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

Where;

$$\sigma^2d = \frac{\sum d^2 - \frac{(\sum d)^2}{20}}{20}$$

Where,

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

$$\sigma^2d = \frac{\sum d^2 - (\sum d)^2/n}{N} \quad \sigma^2t = \frac{\sum t^2 - (\sum t)^2/n}{N}$$

The correction factor can be calculated by using Sperman-Brown formula

$$rtt = \frac{2roe}{1 + roe}$$

Where,

rtt= Coefficient of reliability of original test

roe= reliability of coefficient of odd and even score

Validity of the scale

The validity of a test depends upon fidelity with which it measures what it is purported to measure (Kerlinger, 1976). The validity of the scale was examined with the help of content validity by determining how well the content of the scale represented the domain subject matter under study. Since as many items covering the area as possible were selected by discussion with the experts, reviewing the literature and strict adherence to the judges’ ratings, it was presumed that the instrument satisfied the content validity.

RESULTS AND DISCUSSION

A standardized scale for measuring attitude of KVK scientists towards working in rural area was developed according to scale product method which combines the Thurston’s technique of equal appearing interval scale for selection of the items and Likert’s technique of summated rating. The selected 14 statements for final format of the attitude scale have been randomly arranged to avoid response bias. The final format of the scale is presented in Table 2. This scale was found to be reliable with a correlation coefficient of 0.86.

Table 2: Final scale to measure attitude of KVK scientists towards working in rural area

Sr. No.	Statements	Response				
		SA	A	UD	DA	SDA
1	I consider working in rural areas through KVK as an opportunity to serve the country.					
2	Working in a rural area as a part of KVK provides more opportunities to practice a variety of skills.					
3	Working in rural area as a part of KVK provides more autonomy in work.					
4	If other options are available, I shall never opt for working in rural areas.					
5	Rural workplace settings are providing friendly environments.					
6	Working in rural area inhibits further advancement in my career.					
7	I like to work permanently in rural area to work for rural peoples.					
8	Working in rural area as a KVK scientist is not at all exciting to me.					
9	Working with KVK for rural farmers means true service to humanity.					
10	I enjoy doing work in rural areas as part of KVK.					
11	Poor recreational facilities in rural areas decrease work productivity.					
12	There are people in rural areas that I could be friends with.					
13	For working in rural area, I have to make big compromise with luxuries of life.					
14	I am naturally oriented to live with rural people.					

(SA- Strongly agree, A- Agree, UD-Uncecided, DA- Disagree, SDA- Strongly disagree)

Administration of the scale

The selected 14 statements for the final format of the attitude scale have been randomly arranged to avoid response biases in Table 2. Out of the 14 selected statements, five statements (no. 4, 6, 8, 11, 13) are the indicators of the unfavorable attitude and rest of nine statements are the indicators of favorable attitude. Response of 14 statements can be collected through five point continuums of agreement and disagreement to the statements viz. strongly agree, agree, undecided, disagree and strongly disagree with respective weightage of 5, 4, 3, 2, and 1 for the favorable statements and with the respective weightage of 1, 2, 3, 4 and 5 for the unfavorable statements. The total attitude score for each respondent can be obtained by adding scores of all the statements based on their responses, which would vary from 14 to 70.

CONCLUSION

Working in rural area by the agricultural scientists for welfare of farmer is thought task. The scientists with the positive attitude towards working in rural area can carry out his extension work effectively, so it is essential to measure it. An attitude scale was developed for measuring the attitude of KVK scientists towards working in rural area by using 'Scale Product Method' which combines the Thurston's technique of equal appearing interval scale for selection of the items and Likert's technique of summated rating. The scale developed to measure attitude of the KVK scientist towards working rural area consisting total 14 statements, was found reliable and valid. Hence the same can be used by other investigators elsewhere in the context of Agricultural Universities or for other organizations with due modifications.

CONFLICT OF INTEREST

No conflict of interest among researchers.

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