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Development of scale for assessing input dealers attitude towards diploma in agricultural extension services for input dealers (DAESI) programme

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Abstract

Attitude is a behavioural construct that cannot be measured by a single variable, hence the need for developing a standardized instrument for its measurement. The present study has been conducted to develop a reliable and valid instrument for assessing DAESI input dealers attitude towards DAESI programme. A step by step procedure of developing a standardized attitude scale was followed using Likert's summated rating approach. The steps include item collection, relevancy test, item analysis, reliability test as well as validity test. Finally sixteen items were selected for the attitude scale which were found reliable at by Rulon's formula of 0.78 and satisfied content validity. This scale of attitude may be useful for researchers and extension functionaries in order to measure the attitude of input dealers towards DAESI programme.

Keywords: attitude, DAESI

Introduction

Attitude refers to the "degree of positive or negative feelings associated with some psychological object" (Thurstone, 1946) [6]. In the present study attitude is conceptualized as positive or negative feelings of DAESI input dealers towards the DAESI programme for understanding its positive and risky aspects. To measure this, researcher has developed and standardized the attitude scale. Among the techniques available, Likert's technique (1932) [4] of summated rating was used in the present study. The details of the steps followed in the construction of scale method to measure the attitude of input dealers towards DAESI programme is presented in methodology.

Methodology

Item collection

The items of attitude scale are called as statements. In initial stage of developing the scale, total 64 statements reflecting feelings of the input dealers towards the DAESI programme were collected from review of literature, discussion with extension experts and personal experience. The collected statements were edited and subjected to screening according to the criteria laid down by Edward and Kilpatrick (1948) [2] for attitude scale construction. Out of 64 statements, 50 statements were retained after editing that satisfied the scaling criteria were finally selected from the pool of items collected. These statements were found to be non-ambiguous and non-factual.

Item analysis

It may possible that all the collected statements may not be appropriate equally in measuring the attitude of DAESI input dealers towards DAESI programme. Hence these statements were subjected to scrutiny by judges comprised of extension experts, professors and social scientists to determine their appropriateness. For this the list of statements had sent to selected judges. The statements were sent to 75 Judges with request to critically evaluate each statement for its relevancy, their difficulty level and content validity to measure the attitude of DAESI input dealers towards DAESI programme. The judges were requested to give their response on a five point continuum *viz.* strongly agree, agree, undecided, disagree and strongly disagree with scores 5,4,3,2 and 1 respectively. Out of 75 judges 52 had responded in time. They were also asked to make necessary modification, addition or deletion of the statements. The relevancy score of each item was ascertained by adding the scores on rating scale for all the '52 judges' responses.

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Relevancy test

The data received from the judges were subjected to relevancy test to know the relevancy of the selected statements. For this purpose relevancy percentage, relevancy weightage and mean relevancy scores were worked out for all the 50 statements by using following formulae. (C Latha. *et al.* 2021) [1].

a. Relevancy percentage

Relevancy percentage was worked out by summing up the scores of all categories, which were then converted into percentage.

b. Relevancy weightage (R.W.)

Relevancy weightage was obtained by the formula.

$$RW = \frac{HRR + RR + NR + IR + HR}{MPS}$$

c. Mean relevancy score (M.R.S.)

M.R.S. was obtained by the following formula.

$$MRS = \frac{HRR + RR + NR + IR + HR}{N}$$

HRR = Highly relevant response (X5)

RR = Relevant response (X4)

NR = Neutral response (X3)

IR = Irrelevant response (X2)

HR = Highly irrelevant (X1)

MPS = Maximum possible score (N × 5 = MPS).

N = Number of judges

Using these three criteria the statements were screened for their relevancy. Accordingly, statements having relevancy % >70, relevancy weightage >0.70 and mean relevancy score > 3.5 were considered for final selection of statements. By this process, 35 statements were isolated in the first stage, which were suitably modified and rewritten as per the comments of judges.

Calculation of ‘t’ values

These 35 statements were subjected to item analysis to delineate the items based on the extent to which they can differentiate the DAESI input dealers with high attitude than the respondent with low attitude towards DAESI programmes.

(Pilot Survey) For this 40 input dealers were selected from non sample area. The respondents were asked to indicate their degree of agreement or disagreement with each statement on the five-point continuum ranging from “strongly agree” to “strongly disagree”. The scoring pattern adopted was 5 to 1, in which, 5 weighs to strongly agree response, 4 to agree response, 3 to undecided response, 2 to disagree response and 1 to strongly disagree response for positive statement and for negative statement, the scoring pattern was reversed. Based upon the total scores, the respondents were arranged in descending order. The top 25.00 per cent of the respondents with their total scores were considered as the high group and the bottom 25.00 per cent as the low group, so as these two groups provide criterion groups in terms of evaluating the individual statements as suggested by (Edward, 1969) [3]. Thus out of 40 input dealers to whom the items were administered for the item analysis, 10 DAESI input dealers with lowest, 10 with highest scores were used as criterion groups to evaluate individual items. The critical ratio, that is the ‘t’ value which is a measure of the extent to which a given statement differentiates between the high and low groups of the respondents for each statements was calculated by using the formula suggested by (Edward, 1969) [3]:

$$t = \frac{X_H - X_L}{\sqrt{\frac{\sum (X_H - X_H)^2 + (X_L - X_L)^2}{n(n-1)}}$$

Where:

X H = the mean score on given statement of the high group

X L = the mean score on given statement of the low group

X H² = Sum of squares of the individual score on a given statement for high group

X = Sum of squares of the individual score on a given statement for low group

X H = Summation of scores on given statement for high group

X L² = Summation of scores on given statement for low group

n = Number of respondents in each group

t = Extent to which a given statement differentiate between the high and low group.

After computing the t- value for all the items, 16 statements with highest ‘t’ value equal to or greater than 1.75 were finally selected and included in the attitude scale.

Table 1: Statements with t Value

S. No	Statements	t value
1	This programme transforms input dealers as the key informants of agro advisory services.	2.791*
2	It transforms input dealers into para extension professionals	3.121*
3	Topic on organizing demonstration is very useful.	1.041
4	Programme helps to learn business tactics.	0.367
5	DAESI programme helps to fetch high return to the farmers.	0.758
6	DAESI brings change in perspective of input dealers by equipping them with scientific information.	2.208*
7	Facilitators are providing knowledge about the agricultural activities undertaken in the district	1.852*
8	DAESI will helps in business expansion.	0.788
9	The curriculum is based on the basis of location specific crops and local needs.	0.795
10	One tutor over forty input dealers is not sufficient to maintain interaction.	-0.213
11	Qualifying marks for this course is high	-0.536
12	The field visit during the programme confronts with local problems.	2.573*
13	This programme helps to improve decision making ability	0.376
14	Lecture on IPM is useful.	-0.455
15	DAESI imparts relevant and location specific agricultural education.	3.397*

16	DAESI will helps to earn more profit.	1.398
17	It is helpful in creating linkage between other line departments.	2.576*
18	Study material in local language enhances understanding.	4.312*
19	Examination pattern of this course is practical oriented.	1.003
20	The content related to schemes in agricultural sector is insufficient.	-0.130
21	It provides knowledge about laws pertaining to regulation of agricultural inputs.	3.686*
22	Negotiation skills is the important topic covered from the business point of view.	1.304
23	Equal weightage is not given to theory, practical and assignments.	1.955*
24	Field visits are not sufficient to cover the course content.	2.412*
25	Evaluation process is satisfactory	-0.871
26	Third party evaluation is appropriate.	2.060*
27	Criteria for attendance is not appropriate.	2.158*
28	Multimedia instructional devices are helpful in better understanding.	0.412
29	This programme helps to improve management ability	-0.455
30	The programme makes input dealers competent for the use of information communication technology.	0.968
31	Diplomas are awarded in time to input dealers	1.914*
32	Batch size for class is large.	2.133*
33	Fees for DAESI program is high.	2.782*
34	The topic on communication skill is very useful	0.788
35	The content related to schemes in agricultural sector is insufficient.	0.795

Standardization of the scale

The validity and reliability was ascertained for standardization of the scale.

Reliability of the scale

A scale is reliable when it gives consistently the same results when applied to the same sample. The designed attitude scale for the study was tested for its reliability by using the split half method. It was introduced to 30 DAESI input dealers of non sample area. Co-efficient of reliability between these two sets of score will be calculated by Rulon's formula (Guilford 1954).

$$r_{tt} = 1 - \frac{\sigma^2_d}{\sigma^2_t}$$

Where,

r_{tt} = Coefficient of reliability

σ^2_d = Variance of those differences

σ^2_t = Variance of the total scores

The coefficient of reliability between two sets of score between was found to be 0.78 which was found to be significant at 1 per cent level, thereby testifying the reliability of the scale.

Validity of the scale

The content validity of the scale was tested. The content validity is the representative or sampling adequacy of the content, the substance, the matter and the topics of a measuring instrument. This method was used in the present scale to determine the content validity of the scale. As the content of the attitude was thoroughly covered the entire universe of agricultural diversification through literature and expert opinion, it was assumed that present scale satisfied the content validity. As the scale value difference for almost all the statements included had a very high discriminating value, it seemed reasonable to accept the scale as a valid measure of the attitude. Thus ensuring a fair degree of content validity.

Results

Among the 35 statements for the item analysis the 16 statements with the highest t values were selected for the final

attitude scale and rest are rejected. The reliability coefficient for the constructed attitude scale was 0.78. Thus reliability coefficient obtained indicated high internal consistency of attitude scale.

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