

## RESEARCH NOTE

## Development of Scale for Measuring Attitude of Extension Personnel towards Bhoochetana Programme

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### ABSTRACT

*A scale was constructed to measure the attitude of the Extension Personnel's towards Bhoochetana programme in Raichur, Koppal and Bellary district of Hyderabad- Karnataka region of Karnataka state. Likert's summated rating scale technique was followed for construction of attitude scale. The validity of the scale was examined with the help of face and content validity. Split half method was followed for testing reliability of the scale and reliability co-efficient of the scale was 0.81. Hence, the scale is reliable and can produce consistent results. The scale so developed finally consists of 29 statements including 19 positive and 10 negative statements.*

**Key words:** *Attitude; Extension personnel; Likert's summated rating scale; Validity and Reliability;*

Attitude has been defined as the degree of positive or negative effects associated with the some psychological object (*Edwards, 1957*). In this study; it referred to the degree of positive or negative attitude of the respondents towards improved cultivation practices of pulse crops.

Bhoochetana programme has been started in 2009-10 for increasing yield by 20 per cent. This has been initiated in Hyderabad Karnataka Region, the main objectives is to increase soil fertility of soil status and knowledge, perception and attitude of stakeholders towards Bhoochetana programme. The training programme has been conducted during khariff and rabi season on major crops. Farm facilitators selected based on SSLC with good background of agriculture knowledge, the farm facilitators transfer of technology of agriculture to the farming community in rainfed areas this has been initiated during 2009-10 & 2010-12.

During 2009-10, 2010-11 and 2011-12 about 2 lakh, 8.5 lakh and 22 lakh farmers respectively were benefited from the scheme. The success of the scheme is well evident from the increase in average yields of 30-40 per cent during 2009, 25-50 per cent during 2010-11 and 21-43 per cent during 2011-12. Karnataka state

received a prestigious "Krishi Karman Award" from the Government of India and "Leadership Awards" from Agriculture Today during the year 2010-11 for which contribution of Bhoochetana was quite significant..

### METHODOLOGY

The present study, Likert Method of Summated Ratings (*Likert's Technique, 1932*) procedure was followed to develop a scale to measure the attitude of the stake holders (extension personnel's) towards Bhoochetana programme

*Item collection* : A set of items and statements which elicits the attitude about Bhoochetana programme was collected in construction with stakeholders of Bhoochetana programme viz., ICRISAT, SAU's, KSDA, Farm facilitators and farmers and also based upon review of previous research studies and discussion with experts in the field of Extension, Agronomy, Soil Science and Psychologists. The areas of socio-economic factor, linkage factor, motivational factor, management factor and other related Bhoochetana programmes philosophical and ideological views were indentified. In these components a tentative list of 92 statements consisting of 64 positive and 28 negative statements

were drafted keeping in view of the applicability of statements suited to the area of study

*Editing of items* : The items and statements collected were carefully edited by following the criteria suggested by *Edwards (1957)*. After rigorous culling, a total of 49 statements were retained out of 92 statements. Each statement comprised minimum possible words and these were checked for their easy comprehension.

*Relevancy* : The edited items and statements were sent to 125 extension specialists working in various institutions like, Indian Council of Agriculture Research (ICAR), State Agriculture Universities, NAARM, CRIDA, IIHR and National Institutions throughout India for the critical evaluation of statements to determine their relevancy on a 3 point continuum viz., Most relevant, Relevant and Not relevant with the score of 3, 2 and 1, respectively and reverse for the negative statements. The judges were also requested to make necessary modifications and addition or deletion of items if they desired so.

A total of 65 responses were obtained in time out of 125. The relevancy score for each statement was found out by adding the scores based on the rating of all the judges. To find out the relevancy percentage of each statements following formula was used.

*Relevancy percentage (RP)* : Relevancy percentage was worked out by summing up the scores of most relevant and relevant categories, which was converted into percentage.

$$RP = \frac{(MR \times 4) + (R \times 3) + (NR \times 1)}{\text{Maximum Possible Score}} \times 100$$

$$RW = \frac{(MR \times 4) + (R \times 3) + (NR \times 1)}{\text{Maximum Possible Score}}$$

$$MRS = \frac{(MR \times 4) + (R \times 3) + (NR \times 1)}{\text{Number of Judges responded}}$$

Where;

RP=Relevancy percentage      RW=Relevancy weightage  
MRS=Mean relevancy score      MR=Most relevant  
R=Relevant                              NR=Not relevant

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 29 statements (out of which 20 positive and 9 negative) were selected.

*Item analysis* : Item analysis is an important step as

per the Likert's technique of attitude measurement in the construction of valid and reliable scale. The purpose of item analysis is to select such items which can very well discriminate between two criterions. The 29 items selected through judges opinion were administered to a random sample of 60 extension personnel on a five point continuum in a non-sample area. Scores assigned for the positive statements were, strongly agree – 5, agree – 4, undecided – 3, disagree – 2 and strongly disagree – 1. For negative statements the scoring pattern was reversed. The total score of a respondent was computed by summing his scores for all the individual items. The range of the scale, under the present scoring system was 1 – 145.

*Final selection of item* : Critical ratio of each statement was calculated for the final selection of items. Critical ratio is a measure of the extent to which a given statement differentiates between the high and low groups of respondents (*Edwards, 1957*).

Items were administered to sixty Extension Personnel in the present study, a group of thirty respondents with highest scores constituted the high group and the group of thirty respondents with the lowest total scores formed the low group. The high and low groups provided the criterion groups to calculate the critical ratio of each item. The critical ratio was calculated by using the following formula.

The thumb rule of rejecting items with 't' value less than 1.75 was followed (*Edwards, 1957*). As per the thumb rule selection of items to be retained in the final scale, apart from eliminating those with poor discriminating ability and questionable validity, was a matter of including those with highest discriminating values. Thus, 29 statements were retained in the final scale based on the following criteria:

- i. The 't' value should be more than 1.75
- ii. The statement should present a new idea *i.e.*, the idea not overlapping with that expressed in other
- iii. The statement should be simply worded and brief selected statement

*Standardization of the scale* : The scale developed was further standardized by establishing its reliability and validity

*Reliability* : Reliability is the ability of a test instrument to yield consistent results from one set of measures to another. A good instrument should evoke responses that

**Selection of statements based on judges Most Relevancy Score, Relevancy Weightage and Relevancy Percentage score**

Statements	MRS	RW	RP
<i>I Socio-economic factors</i>			
Bhoochetana programme aims at improving socio-economic status of the farmers	2.33	0.78	77.78
Bhoochetana programme in rainfed areas changes the economic status of the farmers	2.33	0.78	77.78
Bhoochetana programme project provide the livelihood security to the Bhoochetana farmers	2.08	0.69	69.19
The benefits of Bhoochetana programmes are available only to the selected farmers	2.08	0.69	69.19
Bhoochetana programme major role in enhancing dry land productivity	2.42	0.81	80.81
Bhoochetana programme changes the standard of living of farmers and farm facilitators	2.35	0.78	78.28
Bhoochetana programme is a boon to small and marginal farmers in rainfed area	2.41	0.80	80.30
<i>II Capacity building</i>			
Training provided to the facilitators is not based on the needs and interest of the farmers	1.86	0.62	62.12
Bhoochetana programme is participatory in its approach	2.33	0.78	77.78
Bhoochetana inculcates the decision making ability among the beneficiaries	2.44	0.81	81.31
Information disseminated through BP is based on the need and interest of the farmers	2.39	0.80	79.80
Bhoochetana programme is not following scientific yardstick to conduct the demonstration	1.47	0.49	48.99
BP provides technical information on soil and nutrient management of sulphur, zinc and boron	2.52	0.84	83.84
There is no systematic follow-up mechanism under Bhoochetana programme for farmers to adopt the technology after undergoing training	1.88	0.63	62.63
Bhoochetana programme given importance only to soil testing and nutrient management	2.35	0.78	78.28
BP is not following participatory approach among consortium partners during decision making	1.70	0.57	56.57
Bhoochetana programme brings the desirable changes among farmers in adoption of latest technologies	2.30	0.77	76.77
Bhoochetana programme Scientists conduct regular meeting with all categories of Bhoochetana farmers	2.26	0.75	75.25
Farm facilitators are not exclusively spending their time for Bhoochetana work	1.89	0.63	63.13
The course content in Bhoochetana programme is well designed	2.29	0.76	76.26
Bhoochetana programme provides unique opportunity to the farm facilitators through training	2.26	0.75	75.25
The training programmes of Bhoochetana are not planned according to season and time	1.32	0.44	43.94
Bhoochetana programme provides possible solutions to the present agricultural situation	2.06	0.69	68.69
Bhoochetana programme alone would solve the problems of farmers	1.44	0.48	47.98
Bhoochetana programme is a valuable tool but it will never influence farmers' for own decision making.	1.55	0.52	51.52
Trainings provided by Bhoochetana programme are monotonous and not practical	1.52	0.51	50.51
Exposure visits conducted by Bhoochetana programme motivate the beneficiaries	2.39	0.80	79.80
<i>III Linkage factors</i>			
Bhoochetana establishes strong linkage between farmers and extension personnel	2.65	0.88	88.38
There is lack of coordination among consortium partners of Bhoochetana programme	2.02	0.67	67.17
Bhoochetana programme helps beneficiaries to develop links with other allied activities	2.26	0.75	75.25
Bhoochetana programme seeks strong feedback from the beneficiaries for further improvement	2.42	0.81	80.81
<i>IV Motivational factors</i>			
Bhoochetan farm facilitators motivate the farmers to adopt the different Bhoochetana farm practices	2.55	0.85	84.85
Bhoochetana programme motivates the farmers to adopt the technologies	2.42	0.81	80.81
<i>V Management factors</i>			
Management of resources can be effectively done through community based organizations in Bhoochetana programme	2.41	0.80	80.30
In Bhoochetana programme planning is efficient but implementation is lacking at field level	2.27	0.76	75.76
<i>VI Related factors</i>			
Bhoochetana programme helps in assisting/advising lead farmers during crop period	2.27	0.76	75.76
Bhoochetana only concentrates on few micro nutrients in various localities than the holistic approach	2.06	0.69	68.69
			cont.

Statements	MRS	RW	RP
BP provides recommended quantity of micro nutrients to beneficiaries based on soil test	2.30	0.77	76.77
BP playing major role in reducing soil problems like salinity and alkalinity	2.26	0.75	75.25
There is no flexible power for effective implementation of Bhoochetana programme at field level	1.89	0.63	63.13
BP is better than other agricultural development programmes in the area	2.03	0.68	67.68
Existing infrastructure of BP is not enough to meet the needs of the farming community	2.29	0.76	76.26
Only resourceful influential farmers can get the benefit of the Bhoochetana programme	1.95	0.65	65.15
Effective accountability and transparency is not ensured in conducting the Bhoochetana programme	2.02	0.67	67.17
Gives adequate concern to social and environmental issues for sustainable dev. of farmers in rainfed area	2.29	0.76	76.26
Bhoochetana programme does not discriminate between the rich and the poor	2.26	0.75	75.25
The Bhoochetana programme has helped the farmers to sustain themselves during off -seasons	2.27	0.76	75.76
Bhoochetana programme does not help in producing quality agriculture produce	1.68	0.56	56.06

BP=Bhoochetana programme, MRS = Mean relevancy score RW = Relevancy weightage RP = Relevancy percentage

#### Scale developed to measure the attitude of extension personnel's towards Bhoochetana programme

Statements	't' Value
Bhoochetana programme is participatory in its approach	7.99**
Bhoochetana programme helps in assisting/advising lead farmers during crop period	6.50**
Bhoochetana programme changes the standard of living of farmers and farm facilitators	5.99**
Gives adequate concern to social and environmental issues for sustainable development of farmers in rainfed area	5.55**
Bhoochetana establishes strong linkage between farmers and extension personnel	5.12**
The course content in Bhoochetana programme is well designed.	5.10**
Bhoochetana programme motivates the farmers to adopt the technologies	5.07**
Bhoochetana Programme Scientists conduct regular meeting with all categories of Bhoochetana farmers	5.00**
Information disseminated through Bhoochetana programme is based on the need and interest of the farmers	4.78**
Bhoochetana programme in rainfed areas changes the economic status of the farmers	4.75**
Bhoochetana Programme helps beneficiaries to develop links with other allied activities	4.67**
Bhoochetana Programme brings the desirable changes among farmers in adoption of latest technologies	4.51**
Bhoochetana programme aims at improving socio-economic status of the farmers	4.09**
Bhoochetana Programme provides unique opportunity to the farm facilitators through training.	4.00**
Bhoochetan farm facilitators motivate the farmers to adopt the different Bhoochetana farm practices.	4.00**
The Bhoochetana Programme has helped the farmers to sustain themselves during off -seasons.	3.95**
Bhoochetana programme is a boon to small and marginal farmers in rainfed area	3.59**
Bhoochetana inculcates the decision making ability among the beneficiaries	3.55**
Management of resources can be effectively done through community based organizations in BP	3.37**
BP provides technical information on soil and nutrient management of sulphur, zinc and boron	3.16**
Exposure visits conducted by Bhoochetana Programme motivate the beneficiaries	3.05**
Bhoochetana programme given importance only to soil testing and nutrient management	2.75**
Bhoochetana Programme seeks strong feedback from the beneficiaries for further improvement	2.69**
Bhoochetana programme major role in enhancing dry land productivity	2.64**
Bhoochetana programme playing major role in reducing soil problems like salinity and alkalinity.	2.58**
Existing infrastructure of Bhoochetana Programme is not enough to meet the needs of the farming community.	2.38**
In Bhoochetana programme planning is efficient but implementation is lacking at field level.	2.09**
Bhoochetana programme provides recommended quantity of micro nutrients to beneficiaries based on soil test.	2.03**
Bhoochetana programme does not discriminate between the rich and the poor.	1.78**

\*\* Significant at 1 per cent level of probability;

Note: Correlation is 0.831\*\* Significant

are valid and yield nearly same results if administered twice to the same respondents (Goode and Hatt, 1952). According to Kerlinger (1964) reliability is the accuracy or precision of a measuring instrument.

*Split half method* : In the present study, split-half method was used for testing reliability. The scale was split into two halves on the basis of odd and even number of statements and administered to 60 respondents. Thus, the two sets of scores were obtained. Karl Pearson product moment correlation coefficient was calculated between the two sets of scores obtained. The reliability of the test was 0.81. The 'r' value was significant at one per cent level of significance, indicating the high reliability of the instrument. It may be said that, the test is reliable to measure the attitude of stakeholders towards Bhoochetana programme.

*Validity* : Validity of a scale is the property that ensures the obtained test score as valid, if not 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 as they have been established. The details of each 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 experts in the field of Agricultural Extension, Agricultural Microbiology, Soil science (Bhoochetana Nodal Officer) 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, Agricultural Microbiology, Soil science (Bhoochetana Nodal Officer) 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.

*Administering scale* : The final scale was administered to farmers and they were asked to respond on five point continuum viz, strongly agree, agree, undecided, disagree and strongly disagree against 28 selected statements of which 20 were positive and 9 negative. The scoring orders for the response were 5, 4, 3, 2 and 1, respectively for positive statements and reverse in case of negative statements. Thus, the possible attitude score of the individual respondent about Bhoochetana stakeholders (extension personnel's) could range from 1-145.

Further, the farmers were categorized into less favourable, favourable and more favourable categories by considering mean and standard deviation.

Category	Range
Low	Less than (mean - 0.425 SD)
Medium	Between (mean ± 0.425 SD)
High	More than (mean + 0.425 SD)

## REFERENCES

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