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A scale to measure the attitude of farmers towards functioning of integrated call centre: Andhra Pradesh

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Abstract

The aim of this study is to develop an attitude scale for Integrated Call Centre (ICC). The purpose of scale construction is to create a schedule that measures a theoretical variable quantitatively. The attitude scale was created using the Likert's summated rating approach. After reading the literature, a total of 20 statements were chosen and distributed to farmers in non-sample areas of Andhra Pradesh for their perspectives on ICC. The statements were then formed using the Likert Summated Rating Scale approach, and 17 statements were maintained on the final scale based on the 't' value achieved for each statement. The precision and regularity of the findings are indicated by the scale's reliability and validity. With future changes, this scale could be used to assess farmers' attitudes outside of the research region.

Keywords: Attitude scale, Integrated Call Centre (ICC), Likert's summated rating, reliability and validity

Introduction

India is primarily an agriculture-based country. More than 70% of people still rely on this line of work as their main source of income. (FAO, India at a glance). With the advent of high-yielding types during the "green revolution" in 1967–1968, the nation was able to produce 95.05 million tonnes of edible grain on its own (Agricultural statistics at a Glance – 2021).

The field of information technology, also referred to as ICT or information communication technology, has experienced a transformation recently. (ICT). ICT is a tool for information gathering, processing, and communication technologies. It includes the methods and instruments used to access, store, retrieve, modify, display, create, and share information in an electronic and automatic fashion.

Farmers can now instantly use the telephone, a potent technological device that was once only a fantasy for farmers, to handle field problems and other agricultural requirements. India had approximately 36.28 million cell phones in 2001; by the end of 2020, there will be 1176.79 million phone customers nationwide. (Telecom Statistics India-2020). With the creation and support of a "Integrated Call Center" (ICC) in Andhra Pradesh, this phenomenal expansion of the telecommunications infrastructure is being used to provide the farming community with the most recent information regarding their needs.

An organized disposition to think, feel, observe, and act towards a cognitive object is called an attitude. Additionally, there is no scale accessible to gauge how beneficiary farmers perceive ICC. As a result, it was decided to conduct the current research to create and standardize a scale.

Materials and Methods

The method of summated rating scale suggested by Likert (1932) was followed in the development of scale. A summated rating scale is a set of attitude statements all of which are considered of approximately equal attitude value and to each of which subjects respond with degrees of agreement or disagreement carrying different scores. This method was adopted for the present study because, the use of a single statement to represent a concept is avoided and instead several statements as indicators, all representing different facets of the concept to obtain a more well-rounded perspective can be used.

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Collection and editing of statements

In order to better understand how farmers felt about ICC services, 50 statements were first compiled from the literature and discussed with extension experts and revised using the standards outlined by Likert (1932) and Edward (1957). Out of the 50 Statements, 40 were kept because they were determined to be unambiguous and untrue.

1. Relevancy test

It is possible that not all the statements gathered are similarly pertinent for assessing how farmers feel about ICC-based extension services. As a result, an expert group examined these statements to assess their relevance and decide whether to include them in the final scale. For this, a list of the 40 statements were sent to a panel of specialists. The group of experts included the Agricultural Extension Officers (AEOs), Mandal Agricultural Officers (MAO), and scientists working in the DAATTCs (District Agricultural Advisory and Transfer of Technology), KVKs, and Regional Agricultural Research Stations RARS, representatives from the Integrated Call Center of Andhra Pradesh.

The statements were distributed to 100 specialists with the request that they critically assess each statement for its applicability in gauging farmers' attitudes towards ICC services. It was asked of the specialists to respond on a three-point continuum *viz*, most relevant, relevant, not relevant with scores 3, 2, 1.

In a month, only 70 out of 100 specialists provided feedback. The ratings on the scale for all 70 expert answers were added to determine the relevancy score for each item. The following formula is used for calculating the z values for each statement. Finally, the grand 'z' of all the 40 statements were obtained, and 'z̄' was calculated.

The statements were screened for relevance using the formula,

$$z = (X - \mu) / \sigma$$

z = Average of score obtained by each statement.

μ = The Mean score on each statement.

σ = Standard deviation of each statement.

As scalable statements representing the attitude of farmers towards the functioning of ICC, all the statements with "z" values greater than z (0.00) were chosen. Statements with "z" values less than (0.00) were removed. Hence, after performing a relevance test, 20 statements out of 40 were chosen.

2. Calculation of "t" value

The 20 statements that passed the relevancy test were given to 60 farmers in a non-sample area and they were asked to rate each statement on a five-point scale: Strongly agree (SA), Agree (A), undecided (UD), disagree (DA), and strongly disagree (SDA). For positive statements, the numbers were 5, 4, 3, 2, and 1, and for negative statements they were 5, 3, 2, and 1. Then to evaluate individual statements, the top 25% of respondents with the highest scores and the bottom 25% of respondents with the lowest scores were taken into consideration. For further study, the middle 50% of respondents were eliminated. The critical ratio or the "t" value for each statement was calculated using the top 25% as the

high group and the bottom 25% as the low group. The estimated t value for each statement will indicate the extent to which statements differentiate between respondents of high and low groups. The 't' values were calculated by using the formula suggested by Edward (1969). The 't' value for each statement was calculated by using the formula.

Where,

$$\sum (X_H - X_H)^2 = X_H^2 - (X_H)^2$$

$$\sum (X_L - X_L)^2 = X_L^2 - (X_L)^2$$

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 square of the individual scores on a given statement for high group

∑ X_L² = Sum of square of the individual scores on a given statement for low group

∑ X_H = Summation of the square on the given statement for high group

∑ X_L = Summation of the square on the given statement for low group

n = Number of respondents in each group

3. Selection of attitude statements for the final scale

After computing the "t" value for all the 20 statements, 17 statements with the highest "t" value equal to or greater than 1.75 were finally selected and included in the final attitude scale.

4. Standardization of scale

For the purpose of scale standardization, validity and reliability were determined. Reliability was measured by test-retest method.

5. Testing the Reliability of the scale

A scale is reliable when it will consistently produce the same results when applied to the same sample (Goode and Hatt, 1952). For testing the reliability, the split-half method was employed. The scale of 17 statements was distributed to thirty farmers of the non-sample area of Andhra Pradesh for their responses. After getting back the responses, the scale was divided into two halves, with all odd statements going into one half and all even statements going into the other. The reliability co-efficient was then determined between the two halves. The correlation coefficient for both sets was calculated. The correlation coefficient (r=0.83) was significant at the 0.01 level, showing that the scale was well suited for administering to farmers' to study their attitudes towards the functioning of ICC.

6. Testing the Validity of the scale

The validity of the scale on attitude of farmers towards functioning of ICC was obtained through content validity by taking the judge's opinion. The judges assessed the statements that were chosen for the scale on an individual and overall basis. These were once more examined for relevance and coverage by specialists at Acharya N.G. Ranga Agricultural University. Given that the scale's content was confirmed by the process of gathering statements from the universe of farmer attitudes regarding the operation of ICC, it is reasonable to conclude that the scale has content validity. The final standardized scale to assess farmers' attitudes towards the functioning of ICC was utilized for the current study.

Results and Discussion

The 20 statements were exposed to the judgment of a judge from non-sample. On a five-point scale, the response was recorded as strongly agree, agree, uncertain, disagree, and strongly disagree, with scores of 5, 4, 3, 2, and 1 for affirmative statements and vice versa for negative comments. Each respondent's attitude score was determined by adding their total scores across all the statements with values ranging from 20 to 100. The range of scores was determined by how

strongly each person agreed or disagreed with each of the positive and negative statements (SA/SDA). The "t" values for 20 statements were obtained using Edward (1969) formula. 17 statements with a 't' value >1.75 make up the final scale. After analysis, the smallest "t" value was 1.90 and the highest was 9.59, which were used for developing the final attitude statements. The statements included in the final attitude scale were;

Table 1: Show the statements of t-value

S. No.	Statements	't' value
1	Recommendations provided through telephone is very clear & easy to understand	1.97
2	ICC is regularly providing information to the WhatsApp photographic messages with in 24 hrs.	6.40
3	ICC is the best source to acquire valid technical information to field problems	7.60
4	ICC providing timely information on related current issues to farmers through kiosk at RBK's	1.92
5	ICC enabled us to use cutting- edge technologies	5.83
6	*It is hard to get information related to purchasing of inputs and selling of products from ICC	3.78
7	ICC executives are patient enough to listen to farmers voice prior to providing suggestions	6.95
8	Marketing Information provided by ICC executive helps to fetch more income	9.59
9	*ICC provides Uncertain Information regarding to deposition of Government Subsidies	2.44
10	*Newness is seldom observed in recommendations	3.67
11	*ICC experts are little aware about field conditions	5.38
12	*Only literates can utilize the services of ICC	3.00
13	*The information provided by ICC is a far away from ground reality	9.75
14	*Quite a few number of farmers are aware of the services of ICC	5.17
15	*ICC initiated by the government is just namesake	4.06
16	ICC gives first-hand information about queries of farmers	3.59
17	*I have to wait a long time for the officer to arrive when I have an issue.	1.90

Note

* Negative statement

These concluding remarks will be incorporated into the survey to measure the attitudes of farmers towards functioning of ICC. On a scale of Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (DA), and Strongly Disagree (SD), the respondents will be asked to indicate how much they agree or disagree with each item. (SDA). The scale will have scores from 5 to 1, with 5 representing Strongly Agree (SA), 4 representing Agree (A), 3 representing Undecided (UD), 2 representing Disagree (DA), and 1 representing Strongly Disagree (SDA) in reaction to positive words, and the opposite for negative statements. The respondents' attitude score will be calculated by adding the scores received for each statement.

Conclusion

The final scale included 17 of the 50 statements that were made earlier. The scale's validity and reliability show how accurate and consistent the results are. With the proper changes, this scale may be used to assess farmers' attitudes beyond the research region. Knowing the attitude of the farmers towards the functioning of ICC will be possible with the aid of attitude assessment. it will highlight the ICC strengths and weaknesses and provide insight on how to improve future services to the agricultural community.

This was a part of an M.sc study on "Integrated Call Centre (ICC) in service of farmers- An Exploratory study"

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