Original Research Article

SCALE TO MEASURE STUDENT'S ATTITUDE TOWARDS ROLE-PLAYING IN AGRICULTURE

ABSTRACT

The objective of this study is to assess student's attitude towards role-playing in agricultural sciences. For the purpose, an initiative was taken to develop an attitude scale using Likert's summated rating method. 21 statements were selected by consulting the specialists and by reviewing literatures and were given to the non-sample students of B.Sc. Agriculture who were exposed to role-playing technique. Using Likert's Summation formula, the t- value of each statement was analyzed. From the t- value, 8 statements were retained for the final scale. The reliability and validity of the scale indicates its precision and consistency of the results. This scale is the first of its kind and can be used in future to measure the attitude of the students of various disciplines towards role-playing with suitable modifications.

Key words: *Role-playing, Likert's summated rating scale development, Reliability and Validity*

INTRODUCTION

Role-playing is a product of 'play', 'game' and 'simulation'. (Gabrielle McSharry, 2000). In the context of agriculture, role-playing is used as an instructional teaching and an experiential learning technique for the students to learn the issues and decisions of the past and how things might have been different in local community in a broader setting. Role-playing is not a stand-alone technique. They are embedded in learning strategy and contribute to the course objective (Ments, 1994). Various literatures defended that role-play activities strengthen student's knowledge, their creativity, their values clarification skills and a variety of interpersonal skills identified in the curriculum outcomes. Though in many colleges and universities, role-playing is

conducted for inducing learning interest among students, no research have been conducted yet to assess their attitude towards role-playing. Attitude can be defined as an organized predisposition to think, feel, perceive and behave towards cognitive object (Tripathi, 2008). Hence the present study was contemplated not only to develop and standardize a scale but also to measure whether role-playing is really an effective instructional teaching technique for the students that help them learn faster by their own.

MATERIALS AND METHODS

The method of summated rating suggested by Liker was followed in the development of this 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 degree of agreement or disagreement carrying different scores. This method was adopted for the present study because, the use of 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. The procedure in the study was adopted from Ganesh Kumar (2011) and followed by P. Jaisridhar (2013) to construct a distinct attitude scale towards role-playing in agriculture.

Collection and editing of statements

Twenty five attitude statements were first collected from available literature and in consultation with specialist in the field of education and edited on the basis of criteria suggested by Likert (1932) and Edward (1957). Out of 25 statements, 21 statements were retained and were found to be non-ambiguous and non-factual.

1. **Relevancy test**

All the statements collected may not be relevant equally in measuring the attitude of students towards role-playing in agriculture. Hence to determine relevancy and screening of statements for inclusion in the final scale, a list of entire 21 statements was sent to the panel of judges for judges' opinion. Since we are assessing the effectiveness of role-playing in agriculture, the panel of judges comprised of professors of Tamil Nadu Agricultural University (TNAU) belonging to various department such as Agronomy, Soil Science, Plant Breeding and Genetics, Entomology, Pathology, Agricultural Extension, Agricultural Economics, Agricultural Statistics, Environmental Sciences, Life science groups such as biotechnology, forestry etc. The statements were sent to 31 judges with request to critically evaluate each statement for its relevancy. The experts were requested to give their response on a five point continuum viz., Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (DA) and Strongly Disagree (SDA) with scores 5,4,3,2 and 1 for positive statements and inverse for the negative statements.

Out of 31 judges, 15 responded in a time span of one month. The relevancy score of each item was ascertained by adding the scores on rating scale for all the 15 judges' opinion. From this data, relevancy percentage, relevancy weightage and mean relevancy scores were worked out for all the statements by using the following formula.

a. Relevancy Percentage (RP)

Relevancy percentage was worked out by summing up the scores of highly relevant, relevant, neutral, irrelevant and highly irrelevant categories, which were then converted into percentage form. Before assessing each statement, average relevancy percentage should be found. To calculate it, maximum possible score for each statement was first considered. In every statement the maximum possible score

is 5 and if it is multiplied with 21 (total statements) maximum possible score of 105 was obtained. To calculate average relevancy percentage, the total number of statement was divided with maximum possible score and multiplied with 100 to derive average relevancy percentage. By that process, the average relevancy percentage was found to be 20.00 %.

b. Relevancy Weightage (RW)

Relevancy weightage was worked out using the formula

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

HRR – Highly Relevant Response (X5)

RR – Relevant Response (X4)

NR – Neutral Response (X3)

IR – Irrelevant Response (X2)

HIR – Highly Irrelevant (X1)

MPS – Maximum Possible Score (21 x 5 = 105)

N – Number of Experts (15)

Relevancy weightage obtained for the present study was (0.60).

c. Mean Relevancy Score (MRS)

Mean Relevancy Score was worked out by using the formula,

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

The Mean Relevancy Score obtained for the present study was (4.2).

Using these three criteria, the statements were screened for their relevancy. Accordingly, statements having relevancy percentage >20.00 %, relevancy weightage >0.60 and mean relevancy score >4.2 was considered for final attitude assessment. By this process, all 21

statements had relevancy percentage >20, relevancy weightage >0.60 and mean relevancy score >4.2. These statements were then subjected to calculation to t – value.

2. Calculation of t – value

These 21 statements were subjected to item analysis to delineate the statements based on the extent to which they can differentiate the respondents with high attitude and the respondents with low attitude towards role-playing. For this 15 students were selected as non- samples and were asked to indicate their degree of agreement or disagreement with each statement on a five point continuum. Based on the total scores, the respondents were arranged in descending order. The top 25 per cent of the respondents with high score and bottom 25 per cent of the respondent with low score were taken to provide criterion groups in terms of evaluating individual statements as suggested by Edwards (1957). Thus out of 15 students from whom the items were administered for item analysis, 8 students with highest score and 7 students with lowest score were used as criterion groups. The t – value which is a measure of the extent to which a given statement differentiates between the two groups for each statement was calculated using the formula suggested by Edwards (1957).

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

Where,

$$\sum (X_H - X_H)^2 = \sum X_H^{\,2} - \sum (X_H)^2$$

$$\sum (X_L - X_L)^2 = \sum X_L^{\,2} - \sum (X_L)^2$$

$\sum$ = Summation

X_H = the mean score on given statement of the high group

X_L = the mean score on given statement of the low group

$\sum X_H^2$ = Sum of square of the individual scores on a given statement for high group

$\sum X_L^2$ = Sum of square of the individual scores on a given statement for low group

$\sum X_H$ = Summation of square on given statement for high group

$\sum X_L$ = Summation of square on given statement for low group

n = Number of respondents in each group

RESULTS AND DISCUSSION

1. **Selection of attitude statements for final scale**

   After computing t – value for all the items 8 statements with highest t – value equal to or greater than -1.17 were selected and included in the attitude scale.

2. **Standardization of scale**

   The reliability and validity was ascertained for standardization of scale. Reliability was measured by test-retest method.

3. **Reliability and Validity of the scale**

The final set of 8 statements which represented the attitude of students towards role-playing was administered on five point continuum to a fresh group of 15 students which were not included in the actual sample to know the reliability of the test through test-retest method. After a period of 15 days the scale was again administered to the same respondents and thus two sets of scores were obtained. The correlation co-efficient for both the sets were worked out and 'r' value (0.52) was significant at 0.01 level of probability indicating the attitude scale was highly suitable for administration to the farmers as the scale was stable and dependable in its

measurement. 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 cosmos of role-playing 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.

By applying Likert's formula, the t – value were computed for 21 statements. The final scale consisted of 8 statements having t – value > -1.17 based on 1 % level if significance. Upon comparing the average t – value (-1.17) with all the 8 statements, the minimum t - value obtained was (-1.18) and the maximum t – value obtained was (-2.16). For the final attitude scale, the statements included were;

S. No	Statements	t-value
1*	Integrating experiential learning activities in the classroom will decrease interest in the subject matter and student's understanding of course content.	-1.26
2	Role-playing is effective in reducing racial prejudice	-2.01
3	Role-playing activities help introduce student to "real-world" situation	-1.42
4*	Role-playing is not a motivating factor as majority of students wont enjoy these types of activities and become more inspired learners	-1.77
5*	Role-playing is not a good teaching strategy that fits within the social family of models	-2.01

6	Role-playing is a mainstay of education that needs to be incorporated into our lesson plans on a regular basis	-1.59
7*	Role-play techniques are not popular in our Indian education system and course curriculum	-2.16
8	Students achievement are not affected from usage of instructional technologies in lessons	-1.18

Note:

***Negative statement**

CONCLUSION

Agriculture is a professional discipline. Students who are learning the subject should get practical exposures too. If sufficient practical exposures are lacking then learning become a great challenge. There are various instructional teaching methods that create interest to the learners. One method is role-playing where learners learn by doing. In life science disciplines of agriculture such as (Agronomy, Soil Science Plant Breeding, Entomology and Pathology), role-playing may be seen as an interaction between play, game and simulation and the students who perform such activities results in learning outcome. In the context of social science disciplines of agriculture, subjects like agricultural extension, agricultural economics and agri business management involves research related to farmers, organization and their psychology. In such case prior rehearsal in a classroom setting will give the students a learning experience on how to collect data or information from the farmers, how to understand the psychology, nature and behaviour of an individual in an organization or in farming when they are exposed to working conditions and how do identify their constraints. Role-play in social studies is used to learn the how things might have been different in the past and how the intervention of a new technology

or a product have changed the social set up in the present. So, to make this understand, a role-play act was performed in the classroom atmosphere by the students of B.Sc. Agriculture of Vanavarayar Institute of Agriculture under the theme “understand the techniques in eliciting data from the farmers”. After the act, some among students who performed in the act reported that the integrated experiential learning in the classroom increased their interest in the subject and also made them understand the feeling of another’s suffering as their own. Hence, a need to understand the attitude of students towards role-playing and its effectiveness in course curriculum was felt necessary here. To assess student’s attitude, a scale need to be developed and this paper is the outcome of a true research on constructing an attitude scale for the students. This scale is first of its kind in agricultural discipline. Similarly, there are other professional disciplines like Engineering, Medicine and veterinary where students are committed to learn their subjects effectively such techniques can stimulate interest among students in learning the subject. Also at the same time, it is the responsibility of a teacher to arouse such interest. Assessment of attitude will help to know the student’s satisfaction towards role-playing. This will illustrate the strength and weakness of role-playing and also gives an idea to enhance this technique in future to student community belonging to various professional disciplines. This is a part of a larger research on “Assessing Student’s Psychology on Instructional Teaching Methods” that is at presently being adopted in various universities and colleges.

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