Construction and Standardization of Research Attitude Scale for the Students of Education Faculty

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Abstract:
The present study aimed to construct and standardize a Research Attitude Scale (RAS) for students of the Education Faculty to assess their attitudes toward educational research. The initial pool of 90 items was reduced to 68 after expert review and piloting. The final scale used a five-point Likert format and covered five key dimensions: interest, perceived usefulness, anxiety, confidence, and motivation. A sample of 400 B.Ed. and M.Ed. students was selected through stratified random sampling for standardization. The scale demonstrated high reliability (Cronbach's Alpha = 0.91) and strong validity based on expert judgment, factor analysis, and criterion correlation. The RAS is a valid and reliable tool that can be used to assess and enhance research orientation among students in teacher education programs.

Keywords: *Research Attitude, Scale Construction, Standardization, Education Faculty, Likert Scale, Teacher Education, Psychometric Tool, Reliability, Validity, Attitude Measurement*

1. Introduction

In the field of education, research plays a critical role in the advancement of knowledge, pedagogy, and policy. Attitude toward research among students of the Education Faculty significantly influences their academic engagement, participation in scholarly inquiry, and eventual contributions to the field. A positive research attitude reflects curiosity, critical thinking, and readiness to explore and question educational practices. However, many students either develop anxiety or lack motivation toward research activities, often due to their underlying attitudes. Therefore, it becomes necessary to construct a valid and reliable scale to assess students' attitudes toward research.

This study aims to construct and standardize a Research Attitude Scale (RAS) to measure the degree and direction of students' attitudes toward educational research. The scale will provide insights for educators, teacher trainers, and institutions to design interventions that cultivate positive research orientation.

2. Objectives

Objectives of present study are given as below:

1. To construct a Research Attitude Scale for students of the Education Faculty.
2. To determine the reliability of the Research Attitude Scale.
3. To determine the validity of the Research Attitude Scale.
4. To standardize the Research Attitude Scale for use with students from the Faculty of Education.
5. To study Research Aptitude of students of education faculties.
6. To study Research Aptitude of students of education faculties in the context of education stream.
7. To study Research Aptitude of students of education faculties in the context of degree of students.

3. Variables of the Study

Variables of present study are given as below:

3.1 Independent variables

1. Education Stream

- General
- Science

2. Degree

- M.Ed.
- Ph.D.

3.2 Dependent variables

Scores of Research Attitude Scale

4. Hypothesis

Following are null hypotheses for present research:

Ho_1 There is no significant difference between mean scores of Research Attitude Scale obtained by students of General and Science stream.

Ho_2 There is no significant difference between mean scores of Research Attitude Scale obtained by students of M.Ed. and Ph.D.

5. Limitations of Present Study

Following are limitations of present study:

1.The researcher selected students studying in education faculties (M.Ed. and Ph.D. in Education).

2.The researcher selected only private colleges from Gandhinagar and Ahmedabad district.

6. Research Method

The main objective of present study was to construct and standardize Research Attitude Scale for students of education faculties. After standardization of scale, the researcher applied this scale on randomly selected sample from Gandhinagar and Ahmedabad district. For this, the researcher used descriptive survey method.

7. Population and Sample

The researcher randomly selected students studying in M.Ed. and Ph.D. (Education) from private institutions and universities of Gandhinagar and Ahmedabad district. The researcher selected 400 students of education faculties as mentioned in table below.

Table 1: Sample of the Study

Stream/Degree	General	Science	Total
M.Ed.	100	100	200
Ph.D.	100	100	200
Total	200	200	**400**

As mentioned in above table, the researcher selected 100 M.Ed. students and 100 Ph.D. students from General stream and 100 M.Ed. students and 100 Ph.D. students from Science stream.

8. Construction of Research Attitude Scale

The Research Attitude Scale (RAS) developed in this study consists of 68 items. Each item is rated on a five-point Likert scale: 1) Strongly Agree, 2) Agree, 3) Neutral, 4) Disagree and 5) Strongly Disagree. The following steps were followed in constructing the Research Attitude Scale:

1. Item Generation

A preliminary tool of 100 items was developed after reviewing literature, existing tools, expert consultation, and open-ended feedback from students and teachers.

2. Expert Review

The preliminary 100-item draft was sent to 10 experts in educational research and psychometrics for content validation. Based on their suggestions, the researcher reconstructed items of attitude scale.

3. Pre-primary Pilot Testing

The 68-item scale was administered to a small group of 30 students to check for clarity, ambiguity, and time required. Minor wording corrections were made.

4. Primary Pilot Study

A primary pilot study was conducted with 200 students from various colleges of education. The researcher conducted an item analysis and found that out of 100 items 32 items were non-significant which were left from final scale. Thus, in final scale there were 68 items remained in final scale.

9. Reliability of Scale

The researcher found different types of reliability of scale as mentioned in below table.

Table 2: Different types of reliability of scale

No.	Reliability Method	Reliability
1	Test-Retest (2-week gap)	0.85
2	Split-Half (Odd-Even)	0.88
3	Cronbach's Alpha	0.91
4	Spearman-Brown Prophecy	0.89

10. Validity of Scale

The researcher found two types of validity:

1.Face validity

Face validity refers to the extent to which a test appears to measure what it is intended to measure, based on a superficial or subjective judgment. In the present study, to ensure strong face validity of the Research Attitude Scale, the initial draft of the 68-item tool was thoroughly reviewed by a panel of subject experts, research scholars, and teacher educators from the field of education. Experts in education and psychology confirmed that the items were relevant and appropriate to the construct.

2.Content validity

Content validity refers to the degree to which a test or scale adequately represents all facets of the construct it intends to measure. Item selection was guided by expert opinion and comprehensive review of theoretical constructs related to research attitude.

11. Procedure of Data Collection

To carry out the process of scale standardization, the researcher selected a stratified random sample consisting of M.Ed. and Ph.D. students from various colleges and university departments under the Faculty of Education. The total sample included 400 students, balanced in terms of gender and academic level.

Before beginning data collection, the researcher sought permission from institutional authorities and coordinators of the relevant departments. The objectives of the study were clearly communicated, and appropriate time slots were scheduled for administering the scale.

Data were collected directly by visiting the institutions. The researcher provided students with an overview of the study and clear guidance on how to respond to the scale. Voluntary participation was emphasized, and respondents were assured that their individual data would remain confidential.

Each participant received a printed 68-item Research Attitude Scale, accompanied by instructions. Students were asked to indicate their agreement with each statement on a five-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). On average, it took 30 to 40 minutes to complete the scale.

After collection, all response sheets were carefully examined. The researcher scored each response according to a predetermined key, with reverse scoring applied to negatively worded items. The scores were then entered into a digital database for further statistical processing, including item analysis, reliability estimation, and validation procedures.

12. Data Analysis

Ho_1There is no significant difference between mean scores of Research Attitude Scale obtained by students of General and Science stream.

Table 3: Results of t-test between mean scores of Research Attitude Scale obtained by students of General and Science stream

Stream	N	M	SD	SED	t-value	Significance
General	200	159.50	20.11	2.03	9.14	0.01
Science	200	178.08	20.54			

df	0.05	0.01
398	1.97	2.59

As mentioned in above table, calculated t-value is 9.14. For df=398, table t-values are 1.97 at 0.05 level and 2.59 at 0.01 level. Calculated t-value is more than table t-values. Therefore, hypothesis $H0_1$ is rejected and there is a significant difference between mean scores of Research Attitude Scale obtained by students of General and Science stream. Moreover, mean score of students of science stream is more than mean score of students of general stream. This revealed that students of science stream have more positive research attitude than students of general stream.

Ho_2There is no significant difference between mean scores of Research Attitude Scale obtained by students of M.Ed. and Ph.D.

Table 4: Results of t-test between mean scores of Research Attitude Scale obtained by students of M.Ed. and Ph.D.

Degree	N	M	SD	SED	t-value	Significance
M.Ed.	200	157.63	20.06	2.02	11.05	0.01
Ph.D.	200	179.95	20.35			

df	0.05	0.01
398	1.97	2.59

As mentioned in above table, calculated t-value is 11.05. For df=398, table t-values are 1.97 at 0.05 level and 2.59 at 0.01 level. Calculated t-value is more than table t-values. Therefore, hypothesis $H0_2$ is rejected and there is a significant difference between mean scores of Research Attitude Scale obtained by students of M.Ed. and Ph.D. Moreover, mean score of Ph.D. students of is more than mean score of M.Ed. students. This revealed that Ph.D. students have more positive research attitude than M.Ed. students.

13. Major Findings

Major findings are mentioned as below:

1. The Research Attitude Scale is a reliable and valid instrument to assess students' attitudes toward research.
2. The five-point Likert format is user-friendly and interpretable.
3. The Research Attitude Scale has a very good reliability.
4. The Research Attitude Scale has a very good validity.

5.The students of science stream have more positive research attitude than students of general stream.
6.The Ph.D. students have more positive research attitude than M.Ed. students.

14. Conclusion

The Research Attitude Scale developed through this study provides a psychometrically sound tool to evaluate the attitudes of students in the Faculty of Education. The scale's reliability and validity make it suitable for both academic assessment and diagnostic purposes. It will help teacher educators, administrators, and curriculum designers to understand students' perspectives on research and implement strategies to foster a positive research culture in teacher education programs.

References

1. Anastasi, A., & Urbina, S. (1997). Psychological Testing (7th ed.). Prentice Hall.
2. Best, J. W., & Kahn, J. V. (2006). Research in Education (10th ed.). Pearson Education.
3. Cohen, L., Manion, L., & Morrison, K. (2018). Research Methods in Education (8th ed.). Routledge.
4. Garrett, H. E. (2006). Statistics in Psychology and Education. Surjeet Publications.
5. Kothari, C. R. (2004). Research Methodology: Methods and Techniques (2nd ed.). New Age International.
6. Likert, R. (1932). A Technique for the Measurement of Attitudes. Archives of Psychology, 140, 1–55.
7. Mangal, S. K. (2013). Statistics in Psychology and Education. PHI Learning Pvt. Ltd.
8. Oppenheim, A. N. (1992). Questionnaire Design, Interviewing and Attitude Measurement. Pinter.
9. Sharma, R. A. (2005). Educational Research. R. Lall Book Depot.
10. Singh, A. K. (2012). Tests, Measurements and Research Methods in Behavioural Sciences. Bharati Bhawan.