



# A Comparative Study of Effect of Lecture Method and Lecture Cum Demonstration Method on Achievement of IX Class Students in Biological Science

JITENDRAKUMAR A. PATEL  
Ph. D. Research Scholer  
(Education)  
Hemchandracharya North Gujarat  
University, Patan

DR. CHHAYABEN TRIVEDI  
Research Guide,  
Hemchandracharya North Gujarat Uni., Patan  
Assistant Professor  
Matrushree S.S. Govinda B.Ed. College,  
Palanpur

## Abstract:

*The main objective of this study is to construct and standardize an Attitude Scale to measure the Attitude of B. Ed. students towards Teacher Eligibility Test (TET) of Gujarat. The researcher used descriptive survey method in the present study. The researcher selected 496 sample B.Ed. students for try-out of the draft attitude scale towards TET of Gujarat and t-test used for item analysis of the draft attitude scale towards TET. The researcher selected 38 statements for final attitude scale towards TET of Gujarat out of the 41 items on the basis of high t-value. For estimating reliability of the attitude scale towards TET of Gujarat, the researcher collected data from 104 sample B.Ed. students and used split half method, spearman brown prophecy formula and cronbach alpha technique for estimating reliability of the attitude scale towards TET. The reliability of the Attitude Scale to measure the Attitude of B.Ed. students towards Teacher Eligibility Test (TET) of Gujarat was found as 0.90 by using Spearman Brown prophecy formula and 0.86 by using cronbach alpha. The researcher estimated content validity of the attitude scale towards TET of Gujarat on the basis of experts' suggestions.*

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**Keywords:** Construction, Standardization, Attitude, Teacher Eligibility Test, Reliability, Validity, Try-out, t-test, Correlation of Coefficient

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## 1. Introduction

Education has been considered as the most powerful instrument in the dynamic changes of society as well as in making the Nation strong. Education means the process that happening between the teachers and pupils in a social environment. These three components are together responsible for success and failure of educational process.

The teacher has been considered as the heart and soul of the education system who lightens up a person's life with knowledge and also removes the darkness of life. The main function of the teacher is to develop inner creativities, capabilities and all the good and positive characteristics of the students

In this modern period, the teachers remain active not only inside the classroom but outside the classroom also. The teacher's quality and performance may affect on the quality of education that forwarded to the students. Right now, the task of brining a qualitative change and maintain standard of efficiency of the teacher is a challenging issue in itself. With this developing world, the teachers have to make a similar walk with it to challenges the situations. The teacher education programme of India does not leave any chance to build efficient teacher for all the levels of education. The teacher

education system of India continues to function with their best to inculcate the qualitative changes of teachers. With adding some extra efficiency, the Government of India also organized and conducts an eligibility test to recruit the best teacher in all government schools. Teacher Eligibility Test (TET) is an entrance examination that would be qualified by a candidate who wants to become a teacher in government schools. Qualified in TET is now mandatory for getting teaching job in any government schools according to implementation of the Right of Free and compulsory Education (RTE) Act, 2009.

TET is the most essential criteria for teacher by which national standard of teacher quality can be enhanced. TET increases the level of performance of teacher training institutions and teacher. The Teacher Eligibility test is way to meet specified goal of the prospective teachers throughout the country. TET assesses the potentialities, competency, quality and skill of the candidates before entering into the teaching job.

The prospective teacher refers to the B.Ed. students who wish to become teachers in government school in future and therefore they join in the professional degree course. Teacher Eligibility Test encouraged and motivates the B.Ed. students for their profession. To improve the quality in the teaching profession, NCERT has decided to conduct Central Teacher Eligibility Test (CTET) and also recommend to state governments to conduct the State Teacher Eligibility Test (STET) in their own state in accordance to the implementation of RTE Act, 2009 (Come into force on 1st April, 2010). The National Council of Teacher Education (NCTE) published the guidelines for conducting the Teacher Eligibility Test (TET) under this RTE ACT, (2009) aiming to improve quality of teachers and training institutions and maintain standards across the country.

Teacher Eligibility Test (TET) is a mandatory entrance test required to qualified who wants to become teacher in any government school for teaching classes 1 to 8 in accordance to the guidelines of National Council of Teacher Education (NCTE). Introducing Teacher Eligibility Test (TET) helps to check the behaviour of the particular candidates who is going to be a teacher. TET examination is a recruitment process to recruit quality teachers. There is no any other yardstick like TET which shortlists between the competent or incompetent candidate to be a teacher. It stimulates the B.Ed. students to level up their work ability.

The study on the attitude of B.Ed. students towards TET are vital to understand as their attitude helps to determines how they prepared themselves to join in this profession. It is their attitude which may lead to achieving goal of education.

Therefore, the attitude of B.Ed. students towards TET is most essential to understand. Their attitude brings adequate changes in their professional performance. The worthy tool will be able to know the existing level of attitude of the B.Ed. students. This requires an adequate measurement tool for measuring attitude. Therefore, the researcher felt an urgent need to construct attitude measurement scale that will help to measure the attitude of B.Ed. students towards TET.

## 2. Objective of the Study

1. To prepare the draft of the Attitude scale to measure the attitude of B.Ed. students towards Teacher Eligibility Test (TET) of Gujarat.
2. To determine the Validity of the Attitude Scale to measure the attitude of B.Ed. students towards Teacher Eligibility Test.
3. To try out the draft of the Attitude scale to measure the attitude of B.Ed. students towards Teacher Eligibility Test (TET) of Gujarat.

4. To make item analysis of the Attitude scale to measure the attitude of B.Ed. students towards Teacher Eligibility Test (TET) of Gujarat.
5. To select the items for the final Attitude Scale to measure the attitude of B.Ed. students towards Teacher Eligibility Test (TET) of Gujarat.

### 3. Significance of the study

In order to improve the quality of teachers the professional educational programmes under Teacher Education System of India have been taking great initiatives. Teacher Eligibility Test shortly known as TET is one of the yardsticks in this regard.

Now, across the country TET is conducted to improve the quality of education in schools. TET discriminates between the competent or incompetent candidates to be a teacher. It strengthens the recruitment process of teachers. This initiative welcomed by everybody and found very effective in raising standard of education of our country.

As B.Ed. students are the prospective teachers, TET will help to assess their quality and skill before entering into this novel profession. Inclusion of Teacher Eligibility Test along with the professional degree for promoting teacher's proficiency indicates its importance and significance. B.Ed. students are the right stakeholders to explain their attitude towards TET as they are trained to join in teaching profession in future.

The researcher went through some review of related literature and very few scales are found to measure attitude of B.Ed. students towards TET in India. Most of the researchers were used non-standardized tool for collection of the data in which reliability and validity were not computed. Only one standardized scale namely 'An Attitude scale for Teacher Eligibility Test' (Saxena, 2013) was found till date. Further, no worthy measurement tools has been made so far to investigate attitude towards TET especially in context of Gujarat till date. This is the reason the researcher felt an urgent need to construct reliable and valid instrument for the measurement scale that will help to measure the attitudes of B.Ed. students towards TET of Gujarat.

The present study is therefore, an attempt to construct and standardize an attitude measure which will help in measuring the Attitude of B.Ed. students towards Teacher Eligibility Test of Gujarat. The scale will fulfil the lack of adequate tools for measurements the attitude towards Teacher Eligibility Test of Gujarat.

### 4. Review of related literature

Vasundhra, S. (2013) developed a scale in order to determine the attitude of teacher, teacher educators and teaching aspirants of Lucknow towards TET. In this attitude scale final draft was carried out with 't' value equal to or greater than 1.75 which indicates the average response of high and low groups to statements differ significantly. On the basis of it 30 statements were selected having equal or greater than 't' value 1.75. The reliability of test was found 0.726. The validity of the scale was determined through expert's opinion; it was assumed that the scale measures what it intended to measure.

Murugan and Srinivasan (2014) had conducted a study on "Attitude of private school teachers towards Teacher Eligibility Test, India." The researcher used descriptive survey method. The sample consists of 327 working private school teachers in various private schools situated in Thanjavur District of Tamil Nadu, India by using simple random sampling technique. The investigator used Self constructed tool for data gathering. This study shows high attitude of school teachers towards TET. With respect to gender there is no significant difference found in attitude towards TET of private school teachers.

Singh (2016) conducted a study on "Attitude of student teachers towards teacher eligibility test: role of residence." Random sampling technique was used to select the college as one unit of sample. A total of 400 student teachers from B.Ed. colleges of Panjab were selected as sample of the study. Sample as consist of 121 urban and 279 rural student teachers. An attitude scale developed by Garcha and Taranjit (2012) was used for collection of data. The researcher used descriptive survey method. The results of the study found that most of the prospective teachers have average attitude towards TET. Also, urban student teachers have higher mean score than the rural teacher trainees this means there have a significance difference on attitude towards TET of urban and rural teachers.

Lakshmi and Ashok (2017) had conducted a study on attitude towards Teacher Eligibility Test among B.Ed. trainees. 300 B.Ed. trainees were selected as sample from Coimbatore District. The study revealed that there is no significant difference in attitude towards teacher eligibility test between government and private B.Ed. trainees. There is a significant difference in attitude towards teacher eligibility test in relation to medium of instruction.

Ghazee, B. (2021) had conducted a study on Teacher eligibility Test: Approaches and Attitude of trainee teachers. The study was conducted on 180 trainee teachers pursuing B.Ed. and M. Ed. in Aligarh District. Convenient sampling technique was used. The researcher used a standardized scale constructed by Dr. Vasundhara Saxena for collection of data. The results of the study found that there are no significant differences of attitude of trainee teachers towards teacher eligibility test with respect to gender, locality (urban/rural), and stream.

## 5. Methodology

### 5.1 Method

Descriptive survey method was used in the present study.

### 5.2 Population

For the present study, the total population is comprised of all the 1st and 3rd semester B.Ed. students of academic session 2024-2025 studying in all the B.Ed. colleges under H.N.G. University, Patan in Gujarat.

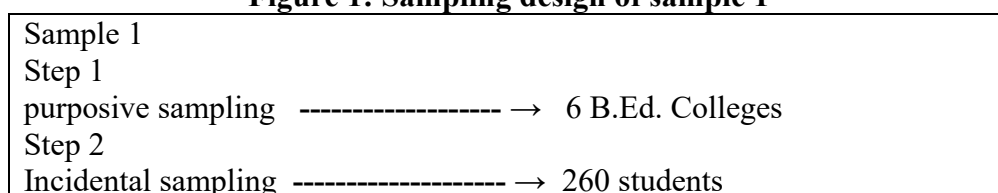
### 5.3 Sample

Considering the purpose of the present study the researcher selected two different samples. Sample 1 is for try out of the Draft Attitude scale to measure the attitude of B.Ed. students towards TET of Gujarat and Sample 2 for standardization of the final draft of the scale. Details of samples tabulated below.

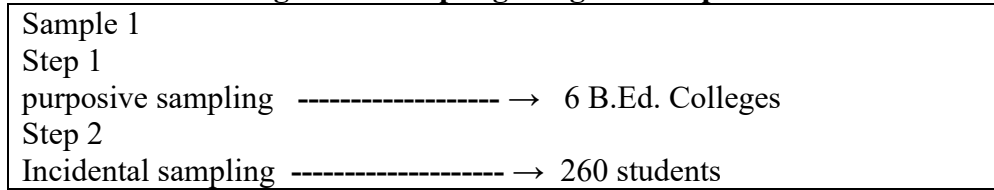
**Table no 1: Sample for item analysis and reliability testing of the attitude scale towards TET of Gujarat**

Types of Samples	Name of the scale	Purpose	Total colleges	Total students
Sample 1	Attitude Scale towards TET of Gujarat	For Item Analysis	6	260
Sample 2	Attitude Scale towards TET of Gujarat	For Estimating Reliability	2	84

**Figure 1: Sampling design of sample 1**



**Figure 2: Sampling design of sample 2**



**5.4 Statistical Techniques used**

The researcher used mean, standard deviation, t-test and split-half methods and Cronbach alpha method, z-score norms for statistical analysis of the present study.

**6. Construction and Standardization of the Attitude Scale**

The researcher followed some steps while constructing and standardizing the attitude scale to measure the attitude of B.Ed. students towards TET of Gujarat. These steps are-

1. Planning and Preparation
2. Selection of dimensions, writing and editing of statements
3. Tryout of draft attitude scale
4. Item analysis
5. Standardization procedure

**6.1 Construction of draft attitude scale to measure the attitude of the B.Ed. students towards TET of Gujarat**

While constructing and standardizing the attitude scale to measure the attitude of the B.Ed. students towards TET of Gujarat, the researcher followed a structured procedure. The steps that had followed by the researcher is briefly summarised below-

**6.1.1 Planning and Preparation of the draft attitude scale to measure the attitude of the B.Ed. students towards TET of Gujarat**

Before writing and editing scale statements, the researcher makes a proper planning and prepared a blue print for the draft attitude scale towards TET of Gujarat. In this step, the researcher highlights the objectives of the study, content, item allotment in each dimension, proportion of favourable and unfavourable items, marks against each response for the draft attitude scale towards TET of Gujarat.

**6.1.2 Writing and Editing Statements of the draft attitude scale to measure the attitude of the B.Ed. students towards TET of Gujarat**

After reviewing different related literature, the researcher selected 5 dimensions for the attitude scale towards TET of Gujarat. These dimensions are-

- Need and Rationale
- Condition and Eligibility
- Nature and Structure
- Content
- Validity and Applicability

The key points of each dimension are tabulated below.

**Table no 2: Dimensions and its key points selected for attitude scale towards TET of Gujarat**

Dimensions	Key points
Need and Rationale	Importance Characteristics Ability to improve teaching institutions Ability to improve teacher Quality of the Test

<b>Condition and Eligibility</b>	Qualification criteria provision relaxation restriction
<b>Nature and Structure</b>	type of paper type of instruction type of examination type of marks duration of time provision of attempt
<b>Content</b>	type of syllabus area of topic
<b>Validity and Applicability</b>	time and place of applicability valid period of qualifying certificate preferences

**Table no 3: The details of the items selected for the draft attitude scale towards TET of Gujarat**

Dimensions	Statements		No. of Statements		Total
	Favourable	Unfavourable	Favourable	Unfavourable	
Need	1,2,4,5,6,8	3,7,9,10,11,12,13,14,	6	8	12
2	17,19,20,	15,16,18,21,	3	4	7
3	22,23,24,27,28,31,32	22,23,24,27,28,31,32	7	5	12

**6.1.3 Administration of the draft attitude scale to measure the attitude of the B.Ed. students towards TET of Gujarat**

The researcher followed the following procedure in the administration of the test:

**6.1.3.1 Selection of the samples for try out of the draft attitude scale to measure the attitude of B.Ed. students towards TET of Gujarat**

For the purpose to the draft try out, the draft attitude scale was administered on 260 B.Ed. students of 1st and 3rd semester from the academic session 2024-25 of 6 B.Ed. colleges affiliated by H.N.G. University, Patan The sample was selected by following two different methods. First of all 6 B.Ed. colleges were selected using purposive sampling method. Then, the 260 B.Ed. students selected applying incidental sampling method.

**6.1.3.2 Writing Instructions of the draft attitude scale towards TET of Gujarat**

The researcher provided necessary instructions on the front page of the draft attitude scale. The instructions were written in English languages. To make the instructions more clear and specific oral instructions also provided in both Gujaratese and English Languages at the time of administration of the draft attitude scale.

**6.1.3.3 Time limit of the attitude scale towards TET of Gujarat:**

The draft attitude scale towards TET was first experimentally administered on few students and it had been seen that the average time taken by the students to complete the task is 40 minutes. Therefore, the researcher set a time limit of 45 minutes for the completion of the responses of the attitude scale towards TET of Gujarat.

#### 6.1.3.4 Scoring procedure of the attitude scale towards TET of Gujarat

The researcher followed the scoring procedure suggested by Likert (1932) while designing and preparing the attitude scale towards TET of Gujarat. The scoring procedure is shown in a tabulated form below.

**Table no 4: Scoring Procedure of the attitude scale towards TET of Gujarat**

Nature of items	Strongly Agree (SA)	Agree (A)	Undecided (U)	Disagree (D)	Strongly Disagree (SD)
Favourable	5	4	3	2	1
Unfavourable	1	2	3	4	5

#### 6.1.3.5 Tryout of the draft of the Attitude scale to measure the attitude of the B.Ed. students towards TET of Gujarat

The researcher administered the draft attitude scale to measure the attitude of the B.Ed. students towards TET of Gujarat on 260 B.Ed. students of 1st and 3rd semester studied in the academic session 2024-25 in 6 B.Ed. colleges affiliated by H.N.G. University, Patan. The sample was selected by following two different methods. First of all 6 B.Ed. colleges were selected using purposive sampling method. Then, the 260 B.Ed. students selected applying incidental sampling method. While administering the draft attitude scale towards TET of Gujarat, the researcher followed different steps. These steps are-

- **Sitting arrangement:** Before starting the administration of try out section, proper sitting arrangement was made for sample students for making them comfortable.
- **Distribution and instruction:** The researcher distributed the draft attitude scale towards TET of Gujarat to the sample students and asked them to read the instructions and each statement carefully before responding to the items. Verbal instructions also provided to the respondents.
- **Collection of the draft attitude scale towards TET of Gujarat:** After completion of the responses the researcher collected the copies and expressed gratitude to the respondents for their kind cooperation. At last, the researcher expressed gratitude to the principal, and teachers of the particular B.Ed. colleges who helped in the administration of the draft.

#### 6.2 Item analysis of the draft attitude scale to measure the attitude of the B.Ed. students towards TET of Gujarat

The researcher followed the following procedure for item analysis of the draft attitude scale to measure the attitude of the B.Ed. students towards TET of Gujarat-

The responses of the draft attitude scale of 260 respondents were scored by using the scoring key as mentioned earlier and arranged in order from the highest score to the lowest score. Then 25% (i.e. 124 respondents) of the respondents from the top and 25% (i.e. 124 respondents) of respondents from the bottom were taken apart. Thus, two groups, high scoring and low scoring groups were formed. The mean scores obtained on each individual item by high scoring and low scoring group were computed. The difference between the mean scores obtained by the high scoring group and low scoring group on a particular item was found out. The difference was considered as the discriminating power of that particular item.

#### 6.3 Item selection for the final Attitude scale to measure the attitude of the B.Ed. students towards TET of Gujarat

The researcher measures the difference between the two mean scores of both groups in each item by using t-value. The items having t- value equivalent to or greater than 1.75 ( $t \geq 1.75$ ) were considered as eligible for the final draft attitude scale to measure the attitude of the B.Ed. students towards TET of Gujarat. The t' value equal to or greater than 1.75 ( $t \geq 1.75$ ) indicates the significant difference between the mean scores of high scoring group and low scoring group. Out of the 41 item from the

draft attitude scale towards TET of Gujarat 38 items having higher t value than 1.75 selected for final attitude scale towards TET of Gujarat.

## **7. Standardization of the Attitude Scale Towards TET of Gujarat**

The procedure of standardization of the attitude scale to measure the attitude of B.Ed. students towards TET of Gujarat is discussed below-

### **7.1 Content Validity**

The researcher sends the entire statements of the draft attitude scale towards TET of Gujarat to 5 experts and on the basis of expert's suggestion and recommendations the statements were selected and modified accordingly. Thus, the attitude scale to measure the attitude of B.Ed. students towards TET of Gujarat has high content validity.

### **7.2 Reliability**

The researcher estimated the reliability of the attitude scale towards TET of Gujarat by using split half technique, spearman brown prophecy formula and cronbach alpha method. The researcher used Incidental sampling technique to select 75 B. Ed students of 1st and 3rd semester of the academic session 2024-25 from B.Ed. colleges under H.N.G. University Gujarat. The researcher used purposive sampling technique while selecting sample institutions.

The researcher had followed a structured procedure for calculating the reliability of the attitude scale towards TET of Gujarat. The procedure as follows-

- Before administration of the attitude scale towards TET of Gujarat a proper seating arrangement was made by the researcher and also verbally communicated with the sample students to make them comfortable.
- After giving the verbal and written instructions to the students the researcher collected data from the sample students.
- In order to scoring the attitude scale, the researcher gave a score against each statement based on the scoring key of the attitude scale towards TET of Gujarat.
- The researcher used firstly the split-half method to calculate the reliability of the attitude scale. The researcher split the scores by using the odd and even method. After that, the researcher calculated the total marks separately in two parts total marks of the odd numbers and total marks of even numbers. The researcher used Pearson product moment coefficient of correlation for calculating the correlation of the half test of the attitude scale towards TET of Gujarat and found it 0.82. Then spearman Brown prophecy formula used for calculating the reliability of the whole scale and found it to be 0.90. Then the researcher used cronbach alpha technique to estimate the internal consistency of the reliability of the scale and it found 0.86.

### **7.3 Norms**

Z-score provides a precise way to indicate the positions of a respondent in a test (Singh, 2016). Z score is the easiest way to compare the raw score obtained from different tests. In the present study, the researcher planned to estimate Standard Score Norms in the Z-score form. So, the raw scores obtained by 104 respondents (Sample 2) were converted into Standard Score Norms in the form of Z-score.

The estimated Z-score for the attitude scale to measure the attitude of B.Ed. students towards TET of Gujarat are summarised below.

**Table no 5: Categories of Attitude scale towards TET according to z-score**

SL. No	Categories of Attitude towards TET	Range of Z score	Range of Raw Scores
1	Very high	Above 1.3107	Above 151
2	Above Average	4369 to 1.3107	136 to 151
3	Average	4369 to-.4369	121 to 136
4	Below Average	-.4369 to-1.3107	106 to 121
5	Very Low	Below-1.3107	Below 106

## 8. Conclusion

The presents study intended to construct and standardize the attitude scale to measure the attitude of B.Ed. students towards TET of Gujarat. The scale is fairly reliable and valid to measure the attitude of B.Ed. students towards TET of Gujarat. Moreover, the norms have been established which serves as frame of reference for interpreting the obtained scores. The scale can be administered easily, scored and interpreted conveniently.

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