CHAPTER - 7
SUMMARY, FINDINGS AND SUGGESTIONS

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7.0 INTRODUCTION:

This chapter incorporates the summary of the study presented above and necessary suggestions for further futuristic researches. It mainly addresses to the findings of each objectives and suggestions based on the findings.

7.1 SUMMARY

Education in any country is a process to develop their people and society. For the overall development of the people and the society education successful for the achievement of this noble and important goal the teaching institutions and the teachers are quite responsible. Teaching is a very complex task which involves extensive interaction with a large number of students in the classroom. This job requires the teacher to understand clearly the complex characteristics of pupils, because he has to encourage certain form of behaviors. Teaching involves various kinds of knowledge, skills, human relation techniques and a host of other attributes. Teaching helps in manipulating the variables of interaction, and these variables are classified into three major classes: humane, environmental and curricular. Again, these variables are present in the context of classroom, school home and community.

So, it is the science teacher and his teaching that can influence and improve the quality of learning. Improvement in educational standards depends mainly on effective classroom teaching which depends on science teacher’s proficiency. As no recently developed tool was available, the researcher undertook this task.
The foremost step for construction was reviewing literature, which could throw light upon the various components of science teaching proficiency and type of items to be constructed. After getting a clear understanding about teaching proficiency and its nature, researcher defined the operational definition of teaching proficiency for this tool.

Researcher studied the meaning of teaching proficiency and then prepare a list of teaching proficiencies in six major components into two sections, are as under:

- **Section : 1**
  1. Planning of teaching
  2. Presentation of lesson
  3. Attitude
  4. Laboratory (procedure & use)
  5. Evaluation.

- **Section : 2**
  6. Teaching aids & content

From the above six major components researcher was prepared related item list. Researcher prepared preliminary draft of teaching proficiency test of total 141 items and send it to different experts in the field of science teaching for collecting their valuable suggestions. Items were reworded; their distracters were modified as per the suggestions of experts. The variables of this research are as follows:

- **Dependent variable**: Teaching Proficiency of science teacher
- **Independent variables**:
  - Area of the school : Urban & Rural
  - Types of School : Grantable & Self-financed
  - Gender : Male & Female
The test of 135 items having two sections was administered on a small group of 28 secondary school science teachers for a pre pilot study. Pre pilot study aimed to find out the defected items in item pool, ambiguity present in the instructions and maximum and minimum time required by the secondary school science teachers to complete the test. From the input of the pre pilot run the test was filtered. After filtration the test was administers to a larger sample of 63 secondary school science teachers as first tryout of pilot study. The time limit was kept fixed and minute observations by the researcher were noted. Revised version of the test was prepared for the second tryout of pilot study having two sections containing 99 items was administers to a larger sample of 205 secondary school science teachers as second tryout of pilot study.

Construction & standardization of the teaching proficiency test. Item analysis was done by ‘t’ test, at 0.01 and 0.05, significant levels, Suggested by Allen Edward.

To calculate reliability of the teaching proficiency test, for the calculation of r, researcher used product moment method.

Component wise Items were carefully selected for the final version of teaching proficiency test of secondary school science teachers. Ten items for each component were selected and thus the final version of of teaching proficiency test contains two sections:

- **Section : 1** consisted 50 statements of check list types of tool and
- **Section : 2** consisted 17 questions related to the component teaching aids & content.

Total 67 items for the final version of the test time limit was decided of 80 minutes.

The last step before administrating the test on the sample was to determine the reliability and validity of the test. Reliability of this test was determined by three ways: test-retest method, split half method and by
using KR$_{20}$ formula. The values are 0.81, 0.66, and 0.67 respectively. To determine the content validity of the test, a panel of judges evaluated the operational definition of teaching proficiency and they reviewed constructed items for each component. This ensured the content validity of the test.

Population for this study was secondary school science teachers teaching in std. VIII, Std. IX and std. X, of Gujarati medium secondary schools following Gujarat state education board, situated within Gujarat State. In the present study, investigator has used probability sampling method and technique used for the sampling is stratified random cluster sampling technique.

As the objective of the final run of administration was to establish the norms of the teaching proficiency test, targeted population i.e. Gujarat State had to be considered and representative sample had to be drawn. The investigator divided Gujarat State into four zones and total 976 secondary school science teachers of various secondary schools from urban and rural were selected as sample.

The test was administered on the sample and scored as one mark for correct answer and zero mark for wrong answer. As per the scoring key, decided by the researcher. Keep in mind with the main objectives of all the statistical techniques used in the research work are as follows.

To study the interaction effect of the area of secondary schools, types of secondary school and gender of the secondary school science teacher on teaching proficiency, Analysis of Variance (ANOVA) technique was used.

7.2 MAJOR FINDINGS:
The major findings of this study are as follows:
• The frequency distribution curve of 976 secondary schools science teachers of Gujarat state was found positively skewed and leptokurtic.

• In Planning of teaching component 5.74% science teachers were excellent, 23.87% science teachers were best, 17.21% science teachers were good, 17.21% science teachers were normal, and 26.93% science teachers were weak.

• In Presentation of Lesson component 8% science teachers were excellent, 23% science teachers were best, 17% science teachers were good, 22% science teachers were normal, and 30% science teachers were weak.

• In Attitude component 4.71% science teachers were excellent, 27.66% science teachers were best, 20.70% science teachers were good, 25.72% science teachers were normal, and 21.10% science teachers were weak.

• In Laboratory (Procedure & use) component 3.89% science teachers were excellent, 21% science teachers were best, 23.87% science teachers were good, 20.39% science teachers were normal, and 30.84% science teachers were weak.

• In Evaluation component 3.99% science teachers were excellent, 34.94% science teachers were best, 30.33% science teachers were good, 16.19% science teachers were normal, and 4.30% science teachers were weak.

• In Section: 2. Teaching aids & content component,

• Section: 2 (A) To write the names of the apparatus 17.42% science teachers were excellent, 21.52% science teachers were best, 35.65% science teachers were good, 18.24% science teachers were normal, and 7.17% science teachers were weak.
Section : 2 (B) To interpret the figure and find correct figure 62.50% science teachers were excellent, and 37.50% science teachers were weak.

Section : 2 (C) To draw a neat label diagram 58.1% science teachers were excellent, and 41.9% science teachers were weak.

Section : 2 (D) Science teaching related questions 38.83% science teachers were excellent, 24.38% science teachers were best, 14.65% science teachers were good, 16.29% science teachers were normal, and 5.84% science teachers were weak.

In Section : 2 (E) Give the topics name for organizing science exhibition, 65.16% science teachers were excellent, and 34.84% science teachers were weak.

In Section : 2 (F) Self made teaching aids, 74.69% science teachers were excellent, and 25.31% science teachers were weak.

In Section : 2 (G) Teaching any unit with the help of O.H.P., 33.50% science teachers were excellent, and 66.50% science teachers were weak.

In Section: 2(H) Give the names of science subject related magazines / reference materials, 63.31% science teachers were excellent, and 33.69% science teachers were weak.

In Section : 2 (I) Teaching any unit with the help of Power point Presentation 24.48% science teachers were excellent, and 75.52% science teachers were weak.

An area of the secondary schools does not influence teaching proficiency test scores.

Types of schools do not influence teaching proficiency test scores.
• Genders of the science teachers do not influence teaching proficiency test scores.

• Interaction between an area of secondary schools and types of school did not influence teaching proficiency test scores.

• Interaction between an area of secondary schools and gender of science teachers did not influence teaching proficiency test scores.

• Interaction between types of schools and gender of science teachers did not influence teaching proficiency test scores.

• Interaction between an area of the secondary schools, types of school, and gender of science teachers did influence teaching proficiency test scores.

• Investigator calculates percentile rank and T-score of the teaching proficiency test, for within group norms.

7.3 SUGGESTIONS:

Present research was to construct the teaching proficiency test for the secondary school science teachers. T.P.T. was administered on 976 secondary schools science teachers. The constructed T.P.T. by the investigator can be used for various purposes. As from the results of the research work suggestions of the study are as follows.

➤ In majority of the component of T.P.T., secondary school science teachers secured their level C, (61% to 74%) and Level D, (51% to 60%). These science teachers can improve their levels by attending seminars, work shops or training programmes organized by the secondary education board.

➤ Interaction between area of the secondary school, types of school, and gender of the science teachers did influence teaching proficiency test scores.
To study the levels of secondary school science teacher by using T.P.T. and give them proper feed back to improve their level for specific component.

Science teacher's wants to improve their level of teaching for any particular component, T.P.T. provides them to guide in proper way.

As entrance exams play a vital role in selecting proper candidates for the secondary schools, administration of this test provides them to drill work.

7.4 SUGGESTIONS FOR FURTHER RESEARCH:

The following are the necessary suggestions for the further study.

- The present study on teaching proficiency of secondary school science teachers has been conducted in a particular city of the country. As proficiency is not an absolute concept rather it is relative to other components, therefore, it would be worthwhile to replicate the present study in different parts of the country.

- The present study was confined to teaching of science at the secondary school level. It would be worthwhile to conduct research on similar lines taking sample from other stages of education also.

- Similar studies may be needed to conduct for other specific subject areas. Because those studies would individually help to characterize proficient teaching in the respective subject areas.

- The present study has been done by taking the proficient science teachers in consideration and tried to find out the relationship between proficiency of proficient teachers and their teaching. Thus, it raises the important question as to what are the characteristics which distinguish the effective teacher from
ineffective one. A comparative study could be conducted to find the answer to this question.

- This test has been standardized for the secondary school science teachers. Same type of the test can be constructed and standardized for higher secondary teachers of Chemistry, physics, biology and mathematics.

7.5 CONCLUSION:

In the foregoing pages the investigator duly attempted in studying the problem that is "To study the teaching proficiency of secondary school science teachers in context of certain variables." in a comprehensive and critical way.

The investigator with his limited scope and resources faithfully and adequately explored new facts and tried his best in illuminating those to the world of academicians. On the basis of appropriate findings of this study some relevant suggestions for conducting further research studies in this direction in order to explore other important aspects of the above said problem were also made by the investigator. Though some aspects could not be covered because the studies in future would fill up the desideratum and as a result, new facts will come to light. It would help in achieving The noble ends of people and society for which science education as a process plays a major role.