



PROFESSIONAL GROWTH OF SCIENCE TEACHERS IN RELATION TO CERTAIN VARIABLES-A STUDY

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ABSTRACT

Teacher occupies a central place and plays a key role in any scheme of work connected with education. If destiny of a country is being shaped in its classroom, the destiny maker is the teacher. The responsibilities are much enhanced in the subject like science where the teacher has impart not only the knowledge of the fact and principles connected with these subjects but also develop understanding insight, abilities and skills for the application of the scientific knowledge as well as help the pupil acquiring desirable scientific attitude, interest and appreciation.

KEY WORDS: Professional growth, Science teacher, Gender, type of school, Area.

INTRODUCTION

Today Education has become tough, complex and tedious process. The lack of quality in Science teaching to degrades Science Education system. Science is one of the most important subjects in the school because of its multitask values. In a current era, when the rocket are booming overhead and man is at the verge of starting commercial flight o the moon , one cannot spare lag behind in the race. The science teacher occupies pivotal place in lying good foundation in science technology through teaching learning process.

A science teacher may be provided with all possible facilities in term of laboratory, apparatus and equipment, given an ideal syllabus and a sufficient time for teaching of science.

BACKGROUND

In this regard, the Kothari commission (1996) says, "Of all the different factors which influence the quality of education and its contribution in national development, the quality, competence and character of teachers are undoubtedly the most significant." Dr. S. Radha Krishnan emphasizes the role of teacher in the following words, "The teacher place in the society is of vital importance. All the findings as suggested above Science teacher act as the pivot for transmission of intellectual traditions and technical skill from generation to generation, and help to keep the lamp of civilization burning. The present research study deals on the Professional Growth of Science Teachers in relation to Certain Variables.

The manifestation of the divine perfection and bringing out the best would deliver the peace- loving personalities with patience, dedication, confidence, self-awareness about right and duties, values, morals, sense of love and feeling of brotherhood.

NEED OF THE STUDY

The need of study the professional growth of a science teacher can be very well realized on account of the following advantages drawn on the part of the teacher because:

1. Science Teacher can reorient himself with the up-to-date knowledge and latest developments in his subject or branch.
2. Science Teacher can be acquainted and acquire the latest strategies, techniques and methodology of teaching his subject related to the aspects of
 - Selecting of the objectives.
 - Selecting suitable learning experiences.
 - Picking up suitable methods and strategies.
 - Using appropriate teaching learning aids.
 - Employing suitable evaluation device.
3. Science Teacher himself develops proper scientific attitude temper and interest and learns scientific method for solving the problem and discovering scientific facts.
4. Science Teacher can acquire more competencies in laboratory skills and practical work necessary in the changing circumstances. Besides this he may acquire skills in the development of improvised apparatus and science kits.

5. Science Teacher acquire necessary knowledge, abilities and skills are necessary for the organization of co-curricular activities and non formal science education like organization of science fairs and exhibitions, science museum, science club, science excursions, scientific hobbies, nature study etc.
6. Science Teacher acquire necessary competency in motivating the students for science learning, applying science in day to day life, inculcating love for extra reading as well as reading of scientific interests.

IMPORTANCE OF THE STUDY

The importance of the quality of the teachers cannot be overemphasized because the strength and success of an educational system depends on them whether they are in schools, college and university. An excellent education for science teaching can merely provide the basic tools for the creative teacher to implement supplement and modify knowledge to meet everyday challenges of young people in a science classroom. The continue learning of science and of "how to teach creatively" are development processes that never end. In order to remain in touch with the latest development in the field of science and science education, the teacher can take the following measure:

1. Attend seminars, workshops, conferences, symposia etc.
 2. Pursue for higher qualifications.
 3. Exchange teaching position, either in the same school or through exchange programs.
1. This study will help to understand the Professional Growth of Science Teacher in relation to Certain Variables.
 2. This study will help to understand the Professional Growth of Science Teacher belonging from different gender male and female.
 3. This study will help to understand the Professional Growth of Science Teacher belonging from granted and non granted schools.
 4. This study will help to understand the Professional Growth of Science Teacher belonging from urban and rural area.

OBJECTIVES OF THE STUDY

1. To study the effect of gender on the Professional Growth of Science Teacher in relation to certain variables.
2. To study the effect of type of schools on the Professional Growth of Science Teacher in relation to certain variables.
3. To study the effect of area on the Professional Growth of Science Teacher in relation to certain variable.

HYPOTHESES OF THE STUDY

It is the key to find the solution of research problem hypotheses play an important role by helping research I finding and collecting the required information and to object the research and collect information. Hypotheses of the present study were as under.

Ho₁: There will no significance difference between the mean scores of profes-

sional growth of the science teacher bearing gender male and female.

Ho₂: There will no significance difference between the mean scores of professional growth of the science teacher bearing granted and non granted school.

Ho₃: There will no significance difference between the mean scores of professional growth of the science teacher bearing urban and rural area.

VARIABLES OF THE STUDY

(A) Gender: Male (A₁) & Female (A₂)

(B) Type of School: Granted type of schools (B₁) and Non Granted type of schools (B₂)

(C) Area: Urban Area (C₁) and Rural Area (C₂)

POPULATION AND SAMPLE

In this study, science teacher of secondary section of schools were the population of this study.

Researcher got the list of secondary schools of Ahmedabad district from website. Researcher selected 25 schools from rural area and 25 schools from urban area of Ahmedabad district through random sampling. From these schools researcher selected one science teacher from each school through purposive sampling, because researcher wanted to study on professional growth of science teachers only. Thus researcher selected 50 science teachers for this study.

TOOL OF THE STUDY

Keeping in mind the views of nature and objectives of the study, researcher made a self made 'Professional Growth Inventory' tool.

RESEARCH METHOD

Researcher used survey method for this study.

STATISTICS USED

In the present study, the researcher has to test the hypotheses some statistical techniques like Mean, S.D., t-Test are applied by the researcher has analyzed the raw data into a meaningful manner.

LIMITATIONS OF THE STUDY

1. This study was restricted to professional growth of the science teachers only.
2. This study was restricted to only science teacher not other subjects.
3. This study was restricted to Ahmedabad only.

ANALYSIS AND INTERPRETATION OF DATA

Ho₁: There will no significance difference between the mean scores of professional growth of the science teacher bearing gender male and female.

Table: 1

Mean, Standard Deviation and t-Value of Professional Growth of Science Teacher, Male and Female

Gender	Mean	S.D.	t-value	Level of Significance
Male	39.79	7.01	0.03*	Not Significant
Female	39.77	6.30		

**.05 Level of significance*

From the above table no. 1, it is evident that the t-value = 0.03 < t_{0.05} = 1.96 which indicate that there will be no significant at t_{0.05} level significance. Hence, the hypotheses that there will be no significance difference between the mean scores of professional growth of the science teacher bearing gender male and female will not be rejected at 0.05 level. It means that there is no difference between the Professional Growth of male and female science teacher of Ahmedabad.

Ho₂: There will no significance difference between the mean scores of professional growth of the science teacher of bearing granted and non granted school.

Table: 2

Mean, Standard Deviation and t-Value of Professional Growth of science Teacher of Granted and non Granted School

Type of school	Mean	S.D.	t-value	Level of Significance
Granted	39.49	6.84	7.81*	Significant
Non Granted	41.93	5.78		

**.01 Level of significance*

From the above table no. 2, it can be observed the t-value = 7.81 > t_{0.01} = 2.57 and at 0.05 level of significance respectively. Hence, the hypotheses that there will be no significance difference between the mean scores of professional growth of the

science teacher bearing granted and non granted schools will be rejected at 0.01 and 0.05 both levels. It is further clarified from the mean that the Professional Growth of the non granted teachers is higher than the granted teachers of Ahmedabad.

Ho₃: There will no significance difference between the mean scores of professional growth of the science teacher bearing urban and rural area.

Table: 3

Mean, Standard Deviation and t-Value of Professional Growth of science Teacher of Urban and Rural Area

Area	Mean	S.D.	t-value	Level of Significance
Urban	42.15	5.28	8.40*	Significant
Rural	37.45	7.11		

**.01 Level of significance*

From the above table no. 3, it can be observed the t-value = 8.40 > t_{0.05} = 1.96 and t_{0.01} = 2.57 at 0.05 and at 0.01 level of significance respectively. Hence, the hypotheses that there will be no significance difference between the mean scores of professional growth of the science teacher bearing Urban and Rural area will be rejected at 0.01 levels. It further clarified from the mean that the Professional Growth of the urban area's science teachers are higher than the rural area's science teachers of Ahmedabad.

FINDINGS OF THE STUDY

1. There exists no significant difference between the professional growth of male and female science teacher, the t-value is 0.03 which is very less than 0.01 level from the mean, it is clear that the male and female science teacher have equal level of Professional Growth.
2. Science teachers of granted schools and non granted schools differs significantly t_{0.01} level in their professional growth from the mean. It is clear that the science teacher of non granted schools have high professional growth than the science teachers of granted school at 0.01 level.
3. Science teachers of rural area and urban area of Ahmedabad differs significantly t_{0.01} level in their professional growth from the mean. It is clear that the science teacher of rural area have higher professional growth than the science teachers of urban area at 0.01 level.

SUGGESTIONS OF THE STUDY

The researcher has following suggestion to increase the professional growth of science teachers are as following:

Suggestions to the Science Teachers

1. To enable the teacher to understand the needs, interest and behavior patterns of students who are in their early adolescence.
2. To develop teaching skills that would help the teacher to improve the teaching effectiveness, in addition to employing several reaching techniques to cater to the needs of students in large, medium and small groups.
3. To help the teacher improve his ability to communicate effectively in the classroom through the use of educational technology devices and to ensure better student participation in the teaching learning process.
4. To enable the teacher to provide guidance to students in their learning problems such as library reading and reading work, self-study and preparing for examination and developing the all-round personality of the students.
5. To understand the problems that arises in management of the students in the classes and work out strategies to solve them.
6. To give special assistance to those students who are not up to the mark in their studies by, diagnosing the cause for the drawbacks and providing remedial teaching as per their needs.
7. To introduce the new teacher to the techniques of action research and small scale experimentation so that may arise in his own classes and follow procedures to manage these by his own efforts so that he can find the effectiveness of his own teaching techniques.

Suggestions for In-service Educational Programme

The in-service Educational Program can be taken up several forms and patterns depending on the purpose for which it is conducted, the resources and infrastructure available and the duration of the course. Some of the more common types are as follows:

1. **Content Course:** Content Courses are conducted to upgrade the teachers in their specialization in current issues and trends, their application and relevance to teaching. During summer holidays content courses are organized for a longer duration of 4-6 weeks and this gives time to really upgrade the teachers in subject content.

2. **Refresher Courses:** They are generally organized to give an opportunity to teachers refresh and improve their knowledge of the subject they teach and widen their experience in the methodology of teaching.
3. **Summer Institutes:** The pattern of summer institutes generally follow that of content courses but the purpose need not be mainly to upgrade the teachers in their fields of specializations such as content, methodology, educational technology and evaluation including practical aspects of laboratory work, field trips and experimentation.
4. **Short term courses:** some of the short term courses could be for orientation purposes or upgrading of subject knowledge or improving pedagogical skills. The duration is variably for three to five days.
5. **Workshops and Seminars:** Workshop is not a talk shops and there is considerable output from the participants in a work shop. The major concern of the workshops is to provide opportunities that are to be challenged by one's peer. The core of the workshop in the area of group thinking and joint planning. The goal of the workshop is the professional growth of the participants as well as the development of the program. Seminars and workshops may prove a potent source for the professional growth of the science teacher.
6. **School Program:** Participation in various programs of the schools like the following may result in the professional growth of the science teacher.
7. **Training Programme:** Science teacher can acquire various scientific skills by participating in these training programs like training in the use of science kits, organization of improvised apparatus, providing special education to the gifted, educationally backward or other children, using projectors and computers in class room etc.
8. **Professional writings:** Professional writings may prove a good source for the growth of the teacher. He may improve this communication ability by writing about his class room experimentation and professional experiences, results of action researches.
9. **Science Journals and instructional material:** For professional growth science teacher must get acquainted with the journal and periodicals as well as the books and instructional material related with science education.
10. **Professional Organization and Teacher Association:** Professional Organization and Teacher Association can play a leading role for the professional growth of the science teachers. These organization hold their meeting, discuss various issues concerning education and related subjects, encourage and innovations. A few of all such organizations and associations are listed as follows:
 1. All India Science Teachers Association (Delhi)
 2. Indian Science Congress Association (Calcutta)
 3. National Association of Teacher Education (Delhi)

CONCLUSION

This research also explores the possible areas of future researches. Although there are many tests to check professional growth of science teacher, each region and city may differ in Professional growth. The profession of teaching reflects a high degree of academic excellence, repertoire of teaching skills and practical wisdom on the one hand and as well – integrated value system on the other and both oriented towards altruistic service.

There are several general and special qualities which a teacher endowed with to be an effective teacher. However, a science teacher must possess some specific qualities to become a successful science teacher. Such as effective personality, Leadership and love for discipline, self confidence, Patience, Affectionate behavior, Hard worker and responsible, impartial behavior and attitude, Plain speaking, a good communicator of ideas, sincerity of purpose where as special qualities science teacher possess are mastery of his subject, Knowledge of history of the subject, knowledge of methods of teaching science, ability to do practical work, knowledge of the new system of examination, taste for scientific activities, efficiency in the preparation and use of teaching aids, scientific thinking and attitude.

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