A study on level of Teacher Effectiveness of Secondary Schools Science Teachers

Dr. Suvarna. V. D[1], Dr. Varun. M[2]

[1]Principal, Shankaragowda College of Education , Mandya-571401,Karnataka, India, Email:
[2]Assistant Professor, Shankaragowda College of Education, Mandya-571401, Karnataka, India.

Abstract:

This study was designed to study the level of Teacher Effectiveness of Secondary School Science Teachers. Samples of 610 Science teachers were selected from 360 schools of Mandya district in Karnataka. Descriptive statistics, t-test, one way ANOVA and TUKEY's HSD post hoc procedures were used for statistical analysis. This study reflects that, 15.08% of Secondary School Science Teachers showed high Teacher Effectiveness. 66.88% of Secondary School Science Teacher showed medium Teacher Effectiveness and 18.3% of Science Teachers of Secondary Schools showed low Teacher Effectiveness. There exists no significant difference between Male and Female Physical Science and Biological Science Teachers with respect to Teacher Effectiveness. It was found that there was significant difference between the Junior and Senior Science Teachers of Secondary School with respect to Teacher Effectiveness. This study also revealed that there was significant difference between Government and Private aided Government and Private unaided also Private aided and private unaided Science teachers of Secondary Schools.

INTRODUCTION:

Teacher Effectiveness is the salient concern for researchers, policy makers and practitioners. Being one of the significant factors of education it plays a pivotal role in bringing reformation in education system. As a result, whole system of education is concentrating on the movement of Teachers Effectiveness.

We know that Teaching is a very complex process. As it involves the significant factors such as Teachers, Pupils and Subject matter in a dynamic interaction, teachers acts as 'trailblazers' in the lives of learners in the process of education.

Significance of the study:

Modern world is very much influenced by the expectations of the communities. As a result, inventions takes place in various fields to meet the requirements of the society and when the demands arise respective changes are introduced by the inventions of various kinds. Accordingly changes should be introduced in the education system to meet the growing demands of the society through molding its future citizen.

We know that Teacher Effectiveness is one of the significant parameters of education. So, it is the chief concern of educationists to bring about improvement in this parameter to enhance the quality of teachers and their performance. This in turn helps teacher's community to enhance the quality of output. Thus investigator selected this parameter to study.

Reviews: - The following reviews throw light on the earlier efforts and their relationship on the present study.

Rabinowitz and Travers (1953), Rayn (1949, 1953b, 1957) as well as Rammers (1952), argued that Teacher Effectiveness could be understood as the effects on students as student gains, student growth and changes in student.

Dhillon and Navdeep (2010) explored that there is no significant difference in the value patterns of Male and Female teachers and Government and Private School Teachers.

Sawhney and kour (2010) while examining Teacher Effectiveness in relation to self-concept of elementary School Teachers found that there is significant relationship between Teacher Effectiveness and Self-concept of Male and Female elementary School Teachers.

Operational definition:

In this study, Teacher Effectiveness refers to "competencies of teachers in relation to parameters and planning for teaching. Classroom management, discipline, motivation, interaction and evaluation, knowledge of subject, its delivery and presentation including black-board summary, personality characteristics of teachers, interpersonal relations of teachers with others".

Objectives of the study:-

a) To examine the level of Teacher Effectiveness of Secondary School Science Teachers.

b) To examine the difference in Teacher Effectiveness with respect to following categories related to Secondary School Science Teachers.

1. Gender: Male and female Science Teachers.
2. Type of School: Govt., Private aided and private unaided Secondary Schools.
3. Teaching experience: Junior (<15 years) and Senior (>15 years).
4. Subject stream" Physical Science and Biological Science.

Hypothesis of the study:-

1) There is no significant difference between Male and Female Science Teachers of Secondary Schools in their level of Teacher Effectiveness.

2) There is no significant difference between Government, Private aided and Private unaided Science Teachers of Secondary Schools in their level of Teacher Effectiveness.

3) There is no significant difference between Junior and Senior Secondary Schools Science Teachers.

4) There is no significant difference between Physical Science and Biological Science Teachers of Secondary Schools.

Methodology: In the present study researcher used descriptive survey method and quantitative techniques for data analysis.

Sample: - Researchers selected 610 Secondary School Science Teachers in Mandya district from 306 Secondary schools out of 428 Secondary Schools.

Sampling technique used: - Researcher has used multi stage sampling technique to select the sample. At first and second stage simple and purposive sampling techniques were used respectively.

Tools used for the study: - To study the level of Teacher Effectiveness the investigator has used "kulsum Teacher Effectiveness Scale (KTS)", which is developed by Umme Kulsm.

Section-I

1.1 Analysis of data relating to the level of Teacher Effectiveness of Secondary School Science Teachers.

Table 1.1: Shows the level of Teacher Effectiveness of Secondary School Science Teachers.

Teacher Effectiveness	Frequency	Percentage
High	111	18.2%
Medium	416	68.2%
Slow	83	13.6%
Total	**610**	**100.0%**

It is found from the table 1.1 that majority (68.2%) of Secondary School Science Teachers have shown medium level of Teacher Effectiveness and 18.2% showed a high level of Teacher Effectiveness but only 13.6% showed a low level of Teacher Effectiveness.

Section-II

2. Analysis of data to find the level of Teacher Effectiveness with respect to selected categories of Science Teachers of Secondary Schools.

2.1: Level of Teacher Effectiveness between Male and Female Secondary Schools Science Teachers.

Table 2.1 Shows the level of Teacher Effectiveness, number and percentage of total Male and Female Secondary School Science Teachers.

Teacher Effectiveness	Gender		Total
	Male	**Female**	
High	49(8.03%)	62(10.16%)	111
Medium	230(37.70%)	186(30.49%)	416
Low	45(7.37%)	38(6.22%)	83
Total	**324**	**286**	**610**

From the table 2.1 it is seen that 37.70% of Male and 30.49% of Female Secondary Schools Science Teachers showed medium level of Teacher Effectiveness. Further 8.03% of Male and 10.16% of Female Science Teachers of Secondary Schools showed high level of Teacher Effectiveness and 7.37% of Male and 6.22% of Female Science Teachers of Secondary Schools showed low level of Teacher Effectiveness.

2.2: Level of Teacher Effectiveness among Government, Private-aided and Private-unaided Science Teachers of Secondary Schools.

Table 2.2 Shows level of Teacher Effectiveness, number and percentage of Government, Private-aided and Private-unaided Science Teachers of Secondary Schools.

Teacher Effectiveness	Type of School			Total
	Government	Private aided	Private unaided	
High	68 (11.14%)	21 (3.44%)	22 (3.60%)	111
Medium	208 (34.09%)	99 (16.22%)	109 (17.86%)	416
Low	38 (6.22%)	20 (3.27%)	25 (4.09%)	83
Total	**314**	**140**	**156**	**610**

The table 2.2 Clearly shows that 34.09% of Government, 16.22% of Private-aided and 17.86% of Private-unaided Science Teacher of Secondary Schools shows medium level of Teacher Effectiveness. 11.14% of Government, 3.44% of Private-aided and 3.60% of Private-unaided Science Teachers of Secondary Schools shows high level of Teacher Effectiveness. Likewise, 6.22% of Government, 3.27% of Private-aided and 4.09% Private-unaided Science Teachers of Secondary Schools shows low level of Teacher Effectiveness.

2.3: Level of Teacher Effectiveness between Junior and Senior Secondary Schools Science Teachers.

Table 2.3 Shows the level of Teacher Effectiveness, number and percentage of Junior and Senior Secondary Schools Science Teachers.

Teacher Effectiveness	Experience		Total
	Junior	Senior	
High	34(5.57%)	77(12.62%)	111
Medium	169(27.70%)	247(40.495)	416
Low	37(6.06%)	46(7.54%)	83
Total	**240**	**370**	**610**

Table 2.3 Reflects the fact that 27.07% of Junior Science Teachers and 40.32% of Senior Science Teachers of Secondary Schools shows medium level of Teacher Effectiveness. 5.57% of Junior Science Teachers and 12.62% of Senior Science Teachers of Secondary Schools shows high level of Teacher Effectiveness. Also, 6.06% of Junior and 7.54% of Senior Science Teachers of Secondary Schools show low level of Teacher Effectiveness.

2.4: Level of Teacher Effectiveness of Physical Science and Biological Science Teachers of Secondary Schools.

Table 2.4 Shows the level of Teacher Effectiveness, number and percentage of Secondary Schools Teachers with respect to Subject Stream.

Teacher Effectiveness	Subject stream		Total
	Physical Science	**Biological Science**	
High	54 (8.85%)	57 (9.34%)	111
Medium	269 (44.09%)	147 (24.09%)	416
Low	52 (8.52%)	31 (5.08%)	83
Total	**375**	**235**	**610**

Table 2.4 Shows that 44.09% of Physical Science and 24.09% of Biological Science Teachers of Secondary Schools shows medium level of Teacher Effectiveness. Whereas, 8.85% of Physical Science and 9.34% Biological Science Teachers of Secondary Schools shows high level of Teacher Effectiveness. 8.52% of Physical Science Teachers and 5.08% of Biological Science Teachers of Secondary Schools shows low level of Teacher Effectiveness.

SECTION III

3. Analysis of data related to Teacher Effectiveness of secondary Schools Science Teachers.

3.1 Hypothesis – 1

There is no significant difference between the mean scores of Male and Female Science Teachers of Secondary Schools with respect to Teacher Effectiveness.

To test the hypothesis 1, mean, standard deviation and t-value were calculated.

Table 3.1 Shows the Gender, number, Mean, Standard deviation total value of Secondary Schools Science Teachers with respect to Teacher Effectiveness.

Gender	N	Mean	Std. Deviation	Total value	Significance
Male	324	252.77	22.63	0.825	NS

Female	286	254.32	23.69		

Note: Not significant at 0.05 levels.

From the Table 3.1 it is found that mean scores of Male and Female Science Teachers of Secondary School are 252.77 and 254.32 with a Standard deviation of 22.63 and 22.69 respectively. t-value (0.825) is found to be not significant at (0.05) level. Hence the null hypothesis is accepted and alternative hypothesis is rejected which means that there is no significant difference between the mean scores of Male and Female Secondary Schools Teachers with respect to Teacher Effectiveness.

3.2 Hypothesis 2

There is no significant difference between the mean scores of Government, Private-aided and Private-unaided Secondary Schools Science Teachers with respect to Teacher Effectiveness.

To test this hypothesis, one way ANOVA test was applied and the result are presented in table 3.3

Table 3.2 Shows the mean scores of Government, Private-aided and Private- unaided Secondary Schools Science Teachers with respect to Teacher Effectiveness.

School Type	N	Mean	Standard deviation	Standard error
Government	314	255.87	22.91	1.29
Private-aided	140	252.63	20.71	1.75
Private-unaided	156	249.53	25.10	2.01
Total	**610**	**253.50**	**23.13**	**0.94**

Table 3.3 Shows One way ANOVA for the mean scores of Government, Private-aided and Private-unaided Secondary Schools Science Teachers with respect to Teacher Effectiveness.

Source of variation	Degrees of freedom	Sum of Squares	Mean of Sum of Squares	F-Value	Significant
Between School	2	4320.586	2160.293		
Within School	607	321559.908	529.753	4.078	0.017*
Total	**609**	**325880.493**	**535.107**		

S**=Significant at 0.01 level. S*=Significant at 0.05 level. NS=Not significant.

From the Table 3.3 it is evident that, the calculated value of F is 4.078 which is greater than table value at 0.05 levels. Hence, the null hypothesis is rejected and the alternative hypothesis is accepted. This means that there is significant difference between the mean scores of Government, Private-aided and Private-unaided Secondary Schools Science Teachers with respect to Teacher Effectiveness.

F is significant, to know the pair wise comparison of Type of School with respect to Teacher Effectiveness of Secondary School Science Teachers, Tukeys HSD post hoc procedures were followed. It was found that there was no significant mean difference between Private-unaided and Private-aided

Schools, Science Teachers. It was found that mean difference in the Teacher Effectiveness between Government and Private-unaided Secondary Schools Science Teachers is significant at 0.05level.

3.3 Hypothesis 3

There is no significant difference between the mean scores of Junior and Senior Science Teachers of Secondary Schools with respect to Teacher Effectiveness.

To test the hypothesis 3, mean, standard deviation and t-value were calculated.

Table 3.4 shows the experience, number, mean and Standard deviation of Secondary Schools Science Teachers with respect to Teacher Effectiveness.

Experience	N	Mean	Standard deviation	t-value	S/NS
Junior	240	251.0083	23.70	2.131	0.034*
Senior	370	255.1216	22.63		

S**=Significant at 0.01 level. S*=Significant at 0.05 level. NS=Not significant.

From the Table 3.4 it is evident that the obtained t-value (2.158) is greater than the table value at 0.05level. Hence the null hypothesis is rejected and the alternative hypothesis is accepted. This means that there is significant difference between the mean scores of Junior and Senior Science Teachers of Secondary Schools with respect to the Teacher Effectiveness.

3.4 Hypothesis 4

There is no significant difference between the mean scores of Physical and Biological Science Teachers of Secondary Schools with respect to Teacher Effectiveness.

To test the hypothesis 4, mean, standard deviation and t-value were calculated.

Table 3.5 Shows the Subject Stream, Mean, Standard deviation and t- value of Science Teachers ofSecondary Schools with respect to Teacher Effectiveness.

Subject stream	N	Mean	Standard deviation	t-value	S / NS
Physical Science	375	251.3227	21.64	2.864	0.004*
Biological Science	235	256.9839	24.98		

S**=Significant at 0.01 level. S*=Significant at 0.05 level. NS = Not significant.

From the Table 3.5 it is evident that the obtained t-value (2.864) is greater than the table value at 0.01 levels. Hence the null hypothesis is rejected and the alternative hypothesis is accepted. This means

that there is significant difference between the mean scores of Physical Science and Biological Science Teachers of Secondary Schools with respect to the Teacher Effectiveness.

Analysis: -The study revealed the facts that 18.2% of Science Teachers of secondary Schools possessed high level of Teacher Effectiveness and 68.2% of Secondary Schools Science Teachers possessed medium level of Teacher Effectiveness and further only 13.6% of Secondary Schools Science Teachers possessed low level of Teacher Effectiveness.

The result reflected that majority of the Science Teachers are having average level of Teacher Effectiveness. Thus, researcher felt the need of enhancing their Teacher Effectiveness for the benefit of the learners as well as society.

The study reflected that there is no significant difference in the level Male and Female Science Teachers, Physical and Biological Science Teachers as well as Senior and Junior Science Teachers of Secondary Schools. But the level of Teacher Effectiveness of Government and Private-unaided Science Teachers of Secondary Schools differed significantly. Whereas Secondary Schools Science Teachers of Government and Private-aided, Private unaided science teachers differ significantly.

The studies of Indira (1997) Dillan and Navdeep (2010) support the result that there is no significant difference between Govt. and Private aided Teachers in their level of Teacher Effectiveness.

Discussion: - To sum up, Teacher Effectiveness of Secondary School Science Teachers is not influenced by Gender, Experience and Subject Stream in the present study. Where as in case of Type of Schools there is mixture of result when pair wise compression was made significant difference was found between Govt. and Private-unaided Science Teachers of Secondary Schools. Significant difference was found between Government and Private aided as well as Private aided and Private un-aided Science Teachers of Secondary Schools. Further, it is observed that the relationship between Gender and Teacher Effectiveness is still a matter of controversy because of inconsistent result. The result obtained regarding experience is also contradicting with the earlier research work. So, researcher felt the need of further research regarding aspects, discussed.

References: -

1. Aaron, P.G (1966) "Motivation-possible correlates of teaching effectiveness". Journal of the college of education IV, (01), 60-63.
2. Abraham, A (1994) "Job satisfaction and Teacher effectiveness", A study on college teachers. Indian Journal of psychometry and education 25.
3. Ajay Kumar Mohanty (2006): Evaluation of Teacher effectiveness through students Rating eductracks March, 2006.
4. Anderson, L.W. (1991). Increasing Teacher effectiveness fundamentals of educational planning. pairs international institute for educational planning. 2nd ed. Paris: UNESCO.
5. Flanders, N. A and Simson (1969): Teaching effectiveness. In R. L. Ebel etal, (eds) Encyclopedia of educational Research (4 Ed.) New York: Macmillan, 554, 1523-1437.