Relationship between Teaching Competency and Knowledge of Multimedia Usage of Secondary School Teachers

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Abstract : Teachers need a wide range of competencies in order to face the complex challenges of today's world. Technologies play an important role in training programme of teachers. Without proper knowledge of ICT teacher cannot perform in his/her classroom and it could not be said to be a complete one. The present study was intended to investigate the relationship between Teaching Competency and Multimedia at secondary school level. The study was conducted on a sample of 120 secondary school teachers selected by simple random sampling technique. Two tools were used to collect the data namely Teaching Competency Scale and Multimedia Scale developed by the researcher. The data was analyzed by computing Pearson's Product Moment Coefficient of Correlation and independent 't' test. The results revealed that there was a significant positive relationship between Teaching Competency of teachers and their knowledge of Multimedia usage. The results concludes that teachers having high knowledge level of multimedia usage had higher levels of teaching competency when compared with teachers having moderate and low knowledge level of multimedia usage. This implies that teacher's should be aware with more knowledge of multimedia usage like electronic tools for teaching to develop their own teaching competence and increase their confidence in the teaching.

IndexTerms - **Teaching Competency, Multimedia, Secondary school teachers, Type of Management**

1. INTRODUCTION

Secondary school teachers assume a critical part in the advancement of students. In schools teaching fills in as imperative methods for hauling for accomplishing objectives of basics. The teacher in present day school plays in their day by day exercises not just the part of conservative teacher by giving new knowledge for students, yet additionally an expert, a consultant, senior companion, a specialist etcetera. It is hard to list all parts of today teacher. Be that as it may, teachers' skills, knowledge, values and personal qualities influence students learning accomplishment and inspiration and as well as arrangement of their national identity. Teachers require an extensive variety of competencies so as to confront the unpredictable difficulties of the present World. The competency formation obtains into consideration, educator to end up professional specifically teaching subject or circle, empowers him to arrange the educational process and feel great in a professional domain.

Along these lines, teachers dependably are searching for approaches to make their educational activities more effective. Teachers are urged to adjust learning strategies to every individual pupil's learning, to challenge and motivate them to learn. Teachers are at the center of any living society. Technologies assume a critical part in preparing project of teachers. Teachers ought to know about multimedia usages for teaching learning process like TV, computer, projector, digital media, cable network, internet, software and social media like Facebook, Twitter, Whatsapp, Linkedinn, Wechat and so on. ICT is essential for educator preparing programme in the present Century. Without appropriate knowledge of ICT educator can't perform in his/her classroom and it could not be said to be an entire one.

Multimedia enables teachers to coordinate text, graphics, animation, and other media into bundle to show complete data for their students to accomplish indicated course results through projectors, PowerPoint presentations and software. According to Sethi (2005), Multimedia defined as "the integration of two or more different information media within a computer system. These media are text, images, audio, video, and animation." Vaughan (2011) defined multimedia "as a combination of digitally manipulated text, photographs, graphic art, sound, animation, and video elements."

The issue of teaching competency has engaged educational research for more than a few decades and highlights the importance of teaching competency and knowledge of multimedia usage of teachers. Ahmad and Khan (2016) examined teaching competency of secondary school teachers in connection to their type of school and results found that government teachers are commanding private

teachers at secondary level based on their teaching competency. Jan (2016) explored the teaching competences of Government and Private secondary school teachers and discovered significant contrast amongst Private and Government Secondary school teachers on their teaching competency. Singh and Singh (2015) purposed an investigation of teaching competency of school teachers in connection to their attitude towards ICT and teacher effectiveness and results show that no significant relationship of teaching competence with attitude towards ICT and teacher effectiveness. Li and Kang (2014) decided utilizing multimedia to promote teaching effectiveness in the classroom of China and presumes that the application of multimedia devices to classroom teaching develops the measure of classroom data, advance teaching content, upgrade intelligence amongst instructor and students, increment teachers' personal competence and limit with respect to data, and thus enables teachers to accomplish the objective of surprisingly advancing teaching effectiveness in the classroom.

From the above studies it is apparent that teacher's knowledge of multimedia usage is most important for teacher for their teaching competencies. From these, teacher can easily bring into line instructional goals and empower instruction through using appropriate multimedia devices for their enhancement of their competency in teaching.

2. SIGNIFICANCE OF THE STUDY

There is a pressing need to enhance the nature of education for creating country of India. Multimedia usage is considered as an important instrument for this reason. The situation of the classroom is evolving. There is a technological tear between the advance of the general public and instructional training of the educator in the classroom. In our classroom the knowledge is conferred by the educator in an old way, an instructor driven mode which is more often than not exhausting and not to pick up enthusiasm to the understudy. Be that as it may, exhibit in the present day education is pupil driven education. The pupils gain from multimedia sources and thus utilization of ICT and Multimedia is particularly basic in educational field and at the same time instructor's knowledge of ICT and Multimedia is likewise required.

Teachers are essential component in the execution of multimedia teaching in education. Without the association of teachers, most students may not exploit all the accessible potential advantages of multimedia all alone. Teachers need to effectively partake in the utilization of multimedia techniques. They must be prepared in the utilization of multimedia and in its joining in the classroom exercises to upgrade their reasoning and imagination and furthermore among students. In this study, attempts are therefore made at examining such issues as are relevant to multimedia usage for teaching and its relationship with their teaching competency at secondary school level in Bengaluru Metro city.

3. STATEMENT OF THE PROBLEM

"RELATIONSHIP BETWEEN TEACHING COMPETENCY AND KNOWLEDGE OF MULTIMEDIA USAGE OF SECONDARY SCHOOL TEACHERS"

4. OBJECTIVES OF THE STUDY

1. To find out the relationship between Teaching Competency and Knowledge of Multimedia usage of secondary school teachers.
2. To find out whether differences in the knowledge of multimedia of secondary school teachers would account for significant differences in their Teaching Competency.
3. To find out whether differences in the background variables (sex, type of school management) and independent variable (knowledge of multimedia usage) would account for significant differences in the Teaching Competency of secondary school teachers.

5. HYPOTHESES OF THE STUDY

The following null hypotheses have been formulated for empirical validation.

1. There is no significant relationship between Teaching Competency and Knowledge of Multimedia usage of secondary school teachers.
2. There is no significant difference in the Teaching Competency of secondary school teachers having varied knowledge levels (low, moderate and high) of multimedia usage.
3. There is no significant difference in the Teaching Competency of male and female secondary school teachers.
4. There is no significant difference in the Teaching Competency of secondary school teachers working in varied types of school management (government, private aided and private unaided institutions).

6. METHODOLOGY

6.1   Research Design: The present research is a descriptive survey method

6.2   Operational Definitions: The following terms have been used in the study.

6.2.1 Teaching Competency: For the present study teaching competency means the right way of assigning units of knowledge, application and skills to the students. It has six dimensions such as classroom management, content knowledge, using instruction methods, student motivation, presentation & communication skills and measurement & evaluation.

6.2.2 Knowledge of multi-media: According to Harris (1993), Multimedia is the combination of several media sources such as video, graphics, animation, audio, and text, accessed by a computer and attached peripherals driven by special programs. In the present study multi-media i**s** defined in terms of knowledge about print (books, newspapers, magazines), computer, internet and the film.

6.2.3 Secondary school teachers: The secondary school teachers are the teachers who teach class IX to X.

6.3   **Variables of the study:** The following variables were treated for the study:

I. Dependent variable   II. Independent variable

Teaching Competency   Multimedia

III. Background Variables: Sex and Type of Mgmt.

6.4   **Sample of the Study:** A simple random sampling technique was used to select the sample. The sample comprised 120 secondary school teachers of Bengaluru Metro City (South division). The sample included 54 male and 66 female teachers.

6.5   **Tools of Research:** The following tools were used to collect data

6.5.1 Teaching Competency Scale (TCS): The TCS developed by the researcher Mohan Kumar G. and Dr. M. Narayanaswamy (2016) was used in the present study to measure teaching competency of secondary school teachers. The scale consists of 55 items distributed over the six dimensions such as classroom management, content knowledge, using instruction methods, student motivation, presentation & communication skills and measurement & evaluation. The test –retest reliability of the scale was 0.72.

6.5.2 Knowledge of Multimedia Scale (KMS): The KMS developed by the researcher Mohan Kumar G. and Dr. M. Narayanaswamy (2016) was used to measure knowledge of multimedia usage of secondary school teachers. The scale consists of 35 statements spread over four dimensions such as terms of knowledge about print (books, newspapers and magazines), computer, internet and the film. The reliability of coefficient was found to be 0.71.

6.6   **Statistical Techniques used to Analyze the Data:** The Pearson's Product Moment Coefficient of Correlation was computed to find out the relationship between the dependent (teaching competency) and independent variable (multimedia) and 't' test was used to find out whether differences in the background and independent variables namely sex, type of school management and knowledge levels of multimedia would account for significant differences in the dependent variable (Teaching Competency) of secondary school teachers.

7. ANALYSIS AND INTERPRETATION OF DATA

The data was analyzed by computing coefficient of correlation in the following table along with graphical presentation.

Table-1: Table shows Karl Pearson's Product Moment Coefficient of Correlation and its significance between Teaching Competency and Knowledge of Multimedia usage of secondary school teachers (N=120 and df=118).

Variables	Obtained 'r' value	Sig. (P Value)	Table Value	Level of Sig.
Teaching Competency and Knowledge of Multimedia	0.427	0.000	0.174 (0.05); 0.228 (0.01)	Significant at 0.01 level

The above table-1 shows that the obtained 'r' value 0.427 is greater than the table value 0.228 at 0.01 level of confidence, therefore the stated null hypothesis is rejected and an alternate hypothesis has been formulated that "there is a significant positive relationship between Teaching Competency and Knowledge of Multimedia of secondary school teachers." The correlation between Teaching Competency and Knowledge of Multimedia usage of secondary school teachers is graphically presented with scatter diagram with R^2 in Fig.1.
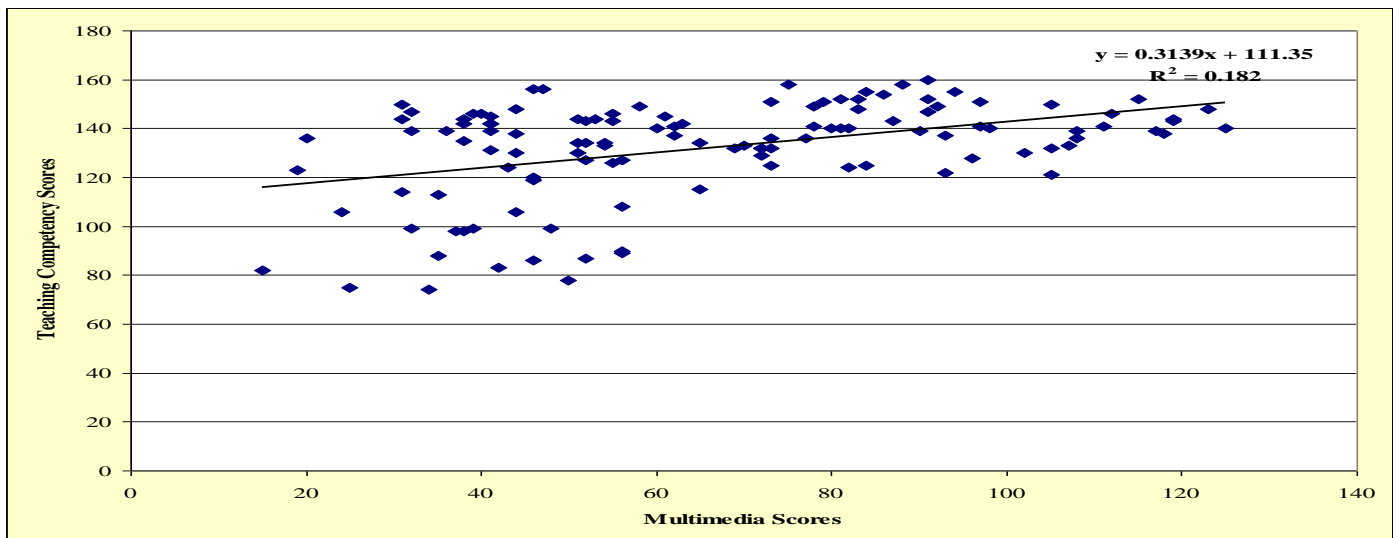
Fig.1: Scatter diagram shows correlation of Teaching Competency and Knowledge about Multimedia usage of secondary school teachers.

Table-2: Table shows the Number, Mean, Standard Deviation, 't' value and its level of significance of the Teaching Competency scores of secondary school teachers due to variations in the knowledge of multimedia, sex and type of school management.

Variable and Groups		N	Mean	Standard Deviation	Obtained 't' value	Sig.	Table Value	Sig. Level
Knowledge of Multimedia	Low	4	111.750	23.329	1.69^{NS}	0.185	1.98 (0.05) 2.63 (0.01)	Not Significant
	Moderate	104	131.692	20.446				
	Moderate	104	131.692	20.446	3.92	0.000	1.98 (0.05) 2.62 (0.01)	Sig. at 0.01 level
	High	12	141.583	5.316				
	Low	4	111.750	23.329	2.54	0.082	2.14 (0.05) 2.98 (0.01)	Sig. at 0.05 level
	High	12	141.583	5.316				
Sex	Male	54	134.666	11.055	1.41	0.163	1.98 (0.05) 2.62 (0.01)	Not Significant
	Female	66	129.848	24.988				
Type of Management	Government	40	117.050	23.654	4.72	0.000	1.99 (0.05) 2.64 (0.01)	Sig. at 0.01 level
	Private aided	40	136.750	11.676				
	Private aided	40	136.750	11.676	2.00	0.050	1.99 (0.05) 2.64 (0.01)	Sig. at 0.05 level
	Private Unaided	40	142.250	12.978				
	Government	40	117.050	23.654	5.91	0.000	1.99 (0.05) 2.64 (0.01)	Sig. at 0.01 level
	Private Unaided	40	142.250	12.978				

From the above table-2, it can be inferred that

➢ the obtained 't' value 1.69 is less than the table value 1.98 at 0.05 level of significance. Hence, the null hypothesis is accepted that "there is no significant difference in the Teaching Competency of secondary school teachers having low and moderate knowledge levels of multi-media usage."

➢ the obtained 't' value 3.92 is greater than the table value 2.62 at 0.01 level of significance. Hence, it was found significant at 0.01 level of confidence and the null hypothesis is rejected and alternate hypothesis has been accepted that "there is a significant difference in the Teaching Competency of secondary school teachers having moderate and high knowledge levels of multi-media usage." The results concludes that teachers having high knowledge level of multimedia usage (M=141.583) had higher levels of teaching competency when compared with teachers having moderate knowledge level of multimedia usage (M=131.692).

➢ the obtained 't' value 2.54 is greater than the table value 2.14 at 0.05 level of significance. Hence, it was found significant at 0.05 level of confidence and the null hypothesis is rejected and alternate hypothesis has been accepted that "there is a significant difference in the Teaching Competency of secondary school teachers having low and high knowledge levels of multi-media usage." The results concludes that teachers having high knowledge level of multimedia usage (M=141.583) had higher levels of teaching competency when compared with teachers having low knowledge level of multimedia usage (M=111.750).

➢ the obtained 't' value 1.41 is less than the table value 1.98 at 0.05 level of significance. Hence, the null hypothesis is accepted that "there is no significant difference in the Teaching Competency of secondary school male and female teachers."

➢ the obtained 't' value 4.72 is greater than the table value 2.64 at 0.01 level of significance. Hence, it was found significant at 0.01 level of confidence and the null hypothesis is rejected and alternate hypothesis has been accepted that "there is a significant difference in the Teaching Competency of secondary school teachers working in Government and private aided institutions." The results concludes that teachers working in private aided institutions (M=136.750) had higher levels of teaching competency when compared with teachers working in government institutions (M=117.050).

➢ the obtained 't' value 2.00 is greater than the table value 1.99 at 0.05 level of significance. Hence, it was found significant at 0.05 level of confidence and the null hypothesis is rejected and alternate hypothesis has been accepted that "there is a significant difference in the Teaching Competency of secondary school teachers working in private aided and private unaided institutions." The results concludes that teachers working in private unaided institutions (M=142.250) had higher levels of teaching competency when compared with teachers working in private aided institutions (M=136.750).

➢ the obtained 't' value 5.91 is greater than the table value 2.64 at 0.01 level of significance. Hence, it was found significant at 0.01 level of confidence and the null hypothesis is rejected and alternate hypothesis has been accepted that "there is a significant difference in the Teaching Competency of secondary school teachers working in Government and private unaided institutions." The results concludes that teachers working in private unaided institutions (M=142.250) had higher levels of teaching competency when compared with teachers working in government institutions (M=117.050).
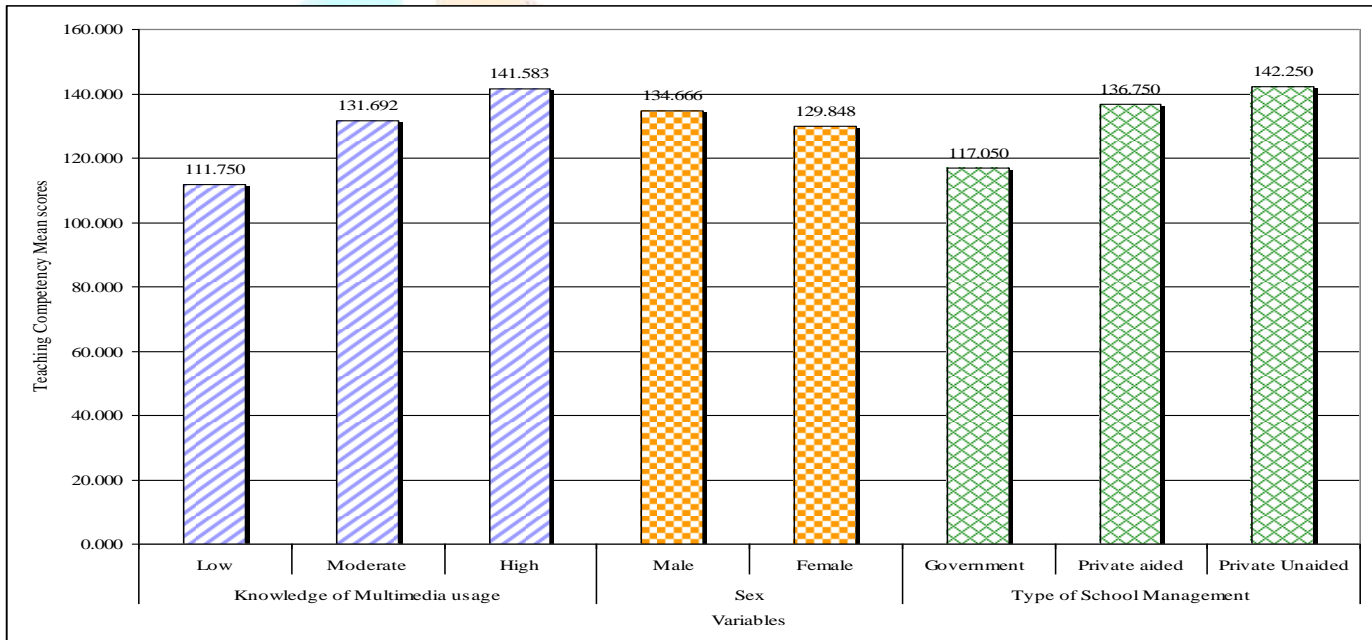

Fig.2: Bar graph shows comparison of mean teaching competency scores of secondary school teachers with regard to their knowledge of multimedia usage, sex and type of school management.

8. MAJOR FINIDNGS

The following are the major findings of the study

1. There exists significant positive relationship between Teaching Competency and Knowledge of Multimedia usage of secondary school teachers ('r'=0.427; P<0.01).

2. There exists no significant difference in the Teaching Competency of secondary school teachers having low and moderate knowledge levels of multimedia usage (t=1.69; P>0.05).

3. There exists significant difference in the Teaching Competency of secondary school teachers having moderate (M=131.692) and high (M=141.583) knowledge levels of multimedia usage (t=3.92; P<0.01).

4. There exists significant difference in the Teaching Competency of secondary school teachers having low (M=111.750) and high (M=141.583) knowledge levels of multimedia usage (t=2.54; P<0.05).

5. There exists no significant difference in the Teaching Competency of secondary school male and female teachers (t=1.41; P>0.05).

6. There exists significant difference in the Teaching Competency of secondary school teachers working in government (M=117.050) and private aided (M=136.750) institutions (t=4.72; P<0.01).

7. There exists significant difference in the Teaching Competency of secondary school teachers working in private aided (M=136.750) and private unaided (M=142.250) institutions (t=2.00; P<0.05).

8. There exists significant difference in the Teaching Competency of secondary school teachers working in government (M=117.050) and private unaided (M=142.250) institutions (t=5.91; P<0.01).

9. CONCLUSION

From the results of the analysis, it was found that there is a significant positive correlation between Teaching Competency and Knowledge of multimedia usage of secondary school teachers and also from 't' test analysis it was found that there was significant difference in the Teaching Competency of teachers having different knowledge levels of multimedia usage. The results concludes that teachers having high knowledge level of multimedia usage had higher levels of teaching competency when compared with teachers having moderate and low knowledge level of multimedia usage. The purpose of using multimedia devices is to find the best ways for teachers to teach efficiently and also students to learn effectively. Teachers need to know how and where they can access information for their own and for their teaching. This implies that teacher's should be aware with more knowledge of multimedia usage like electronic tools for teaching to develop their own teaching competence and increase their confidence in the teaching. The results also found that there was no significant difference in Teaching Competency of secondary school male and female teachers. There was significant difference in Teaching Competency of secondary school teachers working in government, private unaided and private unaided schools. The results inferred that teachers working in private unaided institutions had higher levels of teaching competency when compared with teachers working in private aided and government institutions. This implies that Teaching Competency of aided and government teachers have to be enhanced through school management committees which have to focus on identifying reasons for lower levels of teaching competency among private aided and government school teachers. School management should make serious attempts to motivate these teachers through in-service training program, workshops and orientation programs which should focus on a need for higher levels of Teaching Competency which would result in high quality in school education.

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