



ATTITUDE OF SECONDARY SCHOOL TEACHERS TOWARDS THE USAGE OF TECHNOLOGY IN CLASSROOM

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Abstract

The present study aims to find out significant difference in the attitude of secondary school teachers having experience in the use of technology in classroom. Sample of 116 teachers is drawn from different schools of Hyderabad district. Attitude scale constructed by Avinash Thapa was selected by the researcher for the present study. The findings reveal that the rural and urban teachers as well as science and Humanities teachers differ significantly in their attitude towards the usage of technology in classroom.



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INTRODUCTION

Before coming to the meaning of educational technology, we should, first of all, know what the word technology signifies. In common language, the application of scientific laws and principles for the purpose of making daily life easy and comfortable is technology. By the applications, we accelerate machines and devices which accelerate and systematize our daily life. Thus, technology refers to two aspects-theoretical, based on ideas and practical based on putting ideas into practices. When technology is used for the purpose of accelerating and facilitating educational process with certain objectives in view, that technology is called educational technology. It has already been stated that technology is not limited to the construction of machines and other devices (hardware). Designing, modeling and organization of hardware are needed before their construction which is primarily based on well testified laws and principles

(software). Thus in educational technology humans and machines both have their respective roles and both work as complements to each other in the process of education. It means that man uses his intellect and experience along with the machines and devices by using his art he organizes the teaching-learning process in the best possible manner.

Educational technology is the science on the basis of which various methods and techniques are developed and constructed in order to achieve pre – determined teaching objectives i.e Educational Technology is defined as teaching objectives in behavioural terms. When the teaching objectives are determined, and then come the educational technology to achieve them. By this conditions, for integrating the input during teaching process, are created. The appropriate strategy for achieving the teaching objectives is selected and applied. Educational technology has helped teachers to use scientific and systematic approaches to conduct action research in the class room situation to overcome the classroom problems, related to classroom environment, content, curriculum etc. It helps in realizing pre-specified learning objectives by incorporating available procedures and techniques, helps in teachers' professional growth. Adds to their teaching competence, modify their teaching behavior and style, inculcate a scientific outlook, approach and attitude and help them transfer these to their learners.

Over Head Projector (OHP)

Overhead transparencies can be used to show illustrations on a transparent plastic roll. Drawings and other work can be done on a plastic roll with the help of a wax pencil. The drawn or written material can be projected over the head by making use of overhead projector.

EDUSAT

Indian educational programmes got a fillup on 20th September 2014 with the successful launch of EDUSAT, from the launch pad of the satellite Dhawan space center Sriharikota (A.P).It is an indigenously designed satellite, which is exclusively devoted to the field of education. The cost of the EDUSAT was Rs 900 million (19.5 million) with Rs 1.6 million (34.7 million) for the launch vehicle. There is path breaking effort in the concept of tele-education

SMART CLASSES

Smart class is nothing, but a unique and latest way to teach children. In this technique, a broad screen is there on the wall (like blackboard) and a projector is fixed on the roof so as its rays reflect upon the screen. Through this technique, it is very easy to learn things. This

technique works like a computer screen and also like a blackboard. To take an example, in our times, teachers used to teach us about any picture say, solar system, just by raising up her book and tell us about it. Students sitting away from teacher were really unable to grasp the things properly. But now, any such picture appears of the screen and all the students can easily see and understand the topic easily. It also works like a blackboard as a teacher can write over the screen with a pen esp. created for that purpose. I must say that this technique is going to create a revolution in teaching.

EDUCOMP SMARTCLASS

Educomp smart class is a digital initiative pioneered and invented by Educomp and has already been adopted by over 5500 progressive schools in India. Smart class is transforming the way teachers teach and students learn in schools. It's a new age technology movement that is fast becoming an imperative for schools. Soon it will touch every class and every progressive school in India.

Educomp smart class brings about a complete transformation in classrooms. The Science teacher while explaining how a DNA replicates is able to show the class a 3D animation of the DNA replication process on a large screen.

Educomp smart class improves the teacher effectiveness and productivity in class. It brings abstract and difficult curriculum concepts to life inside classrooms, makes learning an enjoyable experience for students, Improves the academic performance of students and enables instant formative assessment of learning outcomes in class. It also enables teachers to instantly assess and evaluate the learning achieved by their students in class.

How is Educomp smart class implemented in Schools?

Provision of digital content mapped to schools syllabus. All hardware, equipments and accessories with proper installation and maintenance is provided. Initial and ongoing training for teachers along with day to day support and monitoring of usage is done.

Schools do not have to worry about the funds required to set up the infrastructure to run Educomp smart class. Any school can adopt the program by entering into a contract with Educomp and pay a nominal subscription fee on per student per month basis.

Educomp smart class also provides a large repository of 3D animated modules and videos mapped to school curriculum through its exclusive partnership with Eureka, Designate and Discovery.

Computers

Computers are machines that perform tasks or calculations according to a set of instructions, or programs. Computers work through an interaction of hardware and software. Hardware refers to the parts of a computer that you can see and touch, including the case and everything inside it. The most important piece of hardware is a tiny rectangular chip inside your computer called the central processing unit (CPU), or microprocessor. Software refers to the instructions, or programs, that tell the hardware what to do. A word-processing program that you can use to write letters on your computer is a type of software. The operating system (OS) is software that manages your computer and the devices connected to it. Windows is a well-known operating system.

Laptops and net books

Laptops are lightweight mobile PCs with a thin screen. Laptops can operate on batteries, so you can take them anywhere. Unlike desktops, laptops combine the CPU, screen, and keyboard in a single case. The screen folds down onto the keyboard when not in use. Net books (also referred to as mini notebooks), are small, affordable laptops that are designed to perform a limited number of tasks. They're usually less powerful than laptops, so they are used mainly to browse the web and check

Smart phones

Smart phones are mobile phones that have some of the same capabilities as a computer. You can use a smart phone to make telephone calls, access the Internet, organize contact information, send e-mail and text messages, play games, and take pictures. Smart phones usually have a keyboard and a large screen.

SIGNIFICANCE OF THE STUDY

The use of technology can add value in allowing students to develop higher-order thinking skills, increases students motivation, improve teaching and learning and higher level of students achievement. Technology may play an important role in closing the achievement gap. It

goes without saying, technology empowers students; especially those who have limited experience. Technology based assignments allow students more freedom which allows students to think critically about their learning and investigate outside the basic assignments in order to make it meaningful to them and their classmates with the assistance of technology. Teachers and students can both improve their learning refine skill necessary for tomorrow. It goes without saying that all paired with students can show positive achievements gain when paired with effective classroom instruction. Through professional development and follow up support, teachers can provide the valuable classroom instruction needed for students to succeed. In the light of the above discussion, the investigator decided to study the Attitude of secondary school teachers towards the usage of technology in classroom.

REVIEW OF RELATED LITERATURE

Chandini (2016) investigated on Attitude of Secondary School Teachers towards the use of Computers in Education. The results showed that there is significant difference in secondary school teacher's attitude towards the use of computers in education with respect to their age. The findings have implications for the teachers to equip themselves through computers literacy training. Government has to provide infrastructure facilities for use of computers in classrooms. Thus the attitude of secondary school teachers towards the use of computers in education can be improved.

Balta Nuri & Duran Moharren (2015) made a study on Interactive whiteboards are highly rated by both teachers and students. Students mostly prefer the usage of interactive whiteboards in math courses, and their attitudes differ across their genders and school levels. As students get elder, their positive attitudes toward interactive whiteboard technology decrease, and it has been found out that there is no difference between teachers' and students' attitudes. This study includes some implications for policy makers, educator and researchers.

Yadav Reena (2015) made a study on Attitude of secondary school teachers of Rewari district towards the use of information communication technology in education. The investigator found that teachers of urban area school showed more attitude towards use of ICT as compared to rural area school teachers. Private School teachers showed greater attitude towards use of ICT in education as compared to government school teachers.

Chaudhary and Garg (2010) conducted a study on using satellite-Based Networks for capacity building and Education for All: A case study of Rajiv Gandhi project for EDUSAT-supported Elementary Education. This paper discusses the case study of Rajiv Gandhi project for EDUSAT-Supported Elementary Education (RGPEEE) for imparting value added education and professional development of in-service teachers. The project was implemented by Indra Gandhi National Open University (IGNOU) through ten orientation programmes, 868 teachers and functionaries associated with the project oriented at different levels to familiarize them in imparting instruction through EDUSAT and their role and responsibility in facilitating child learning. They were also trained in developing content for tele-teaching; development of knowledge repositories as effective and sustainable sources of courseware. Feedback studies undertaken to judge the effectiveness of EDUSAT reveal that it is being well received and making steady progress towards improvement in attendance and academic achievement of children and creation of better learning-environment in schools. The results reveal that

1. Interactive communication using satellite and long distance telephone links contributed to the knowledge gain of the participants.
2. The conceptual understanding of the participants improved significantly.
3. The question-answer session was more effective than just viewing tele-courses. However, more time needed for question-answer sessions.
4. Non-transmission of the programme because of electricity failure de-motivated the participants.

National Center for Research on Evaluation, Standards, and Student Testing (CRESST) (2006) for the National Partnership for Quality Afterschool Learning indicate that using technology regularly in afterschool Programs to support learning in several content areas leads to improved motivation, Attitudes and academic achievement The study also indicates that Such elements as student characteristics, teacher skills, access to technology, effective Planning, and administrative support and leadership are essential to technology Planning. Non-transmission of the programme because of electricity failure de-motivated the participants. The question-answer session was more effective than just viewing telecourses. However, more time needed for question-answer sessions. The conceptual understanding of the participants improved

significantly. Interactive communication using satellite and long distance telephone links contributed to the knowledge gain of the participants.

Waxman, Lin and Michko(2003) extended the study to estimate the effects of Teaching and learning with technology on students' cognitive, affective, and behavior experimental published research on the effects of teaching and learning with technology On student outcomes in naturalistic settings. The final sample of studies included 42 Journal articles. A total of 282 effect sizes were calculated for a combined sample of Approximately 7,000 students. The mean of the study-weighted effect sizes averaging across all outcomes was .410 ($p < .001$), with a 95% confidence interval (CI) of .175 to .644. This result indicates that teaching and learning with technology has a small, Positive, significant ($p < .001$) effect on student outcomes when compared to traditional instruction. The mean study-weighted effect size for the 29 studies containing cognitive Outcomes was .448, and the mean study-weighted effect size for the 10 comparisons that focused on student affective outcomes was .464. On the other hand, the mean study weighted effect size for the three studies that contained behavioral outcomes was .091, indicating that technology had a small, negative effect on students' behavioral Outcomes. The overall study-weighted effects were constant across the categories of Study characteristics, quality of study indicators, technology characteristics.

Waxman et al. (2003) found that in general the available research related to teaching and learning with technology lacked quality. Few quantitative studies used randomized, experimental design. The studies also lacked details such as specifics about software and technology components. The results of a study conducted in 2006 by the National Center for Research on Evaluation, Standards, and Student Testing (CRESST) for the National Partnership for Quality Afterschool Learning indicate that using technology regularly in afterschool programs to support learning in several content areas leads to improved motivation, Attitudes and academic achievement (Huang, 2007). The study also indicates that such elements as student characteristics, teacher skills, access to technology, effective Planning, and administrative support and leadership are essential to technology Planning.

North Central Regional Educational Laboratory (2002) (NCREL) commissioned meta-analysis by Waxman, Connell, and Gray to study the effects of teaching and learning with technology on student outcomes. Several criteria were established for inclusion in this synthesis.

The synthesis included quantitative, experimental, and Quasi-experimental research and evaluation studies that had been published in refereed Journals during a 5-year period (1997–2002). The report calculated 138 effect sizes using Statistical data from 20 selected studies representing a combined sample of approximately 4,400 students. The mean of the study-weighted effect sizes averaging across all outcomes was .30 ($p < .05$), with a 95% confidence interval. This result Indicates that teaching and learning with technology has a small, positive, significant ($p < .05$) effect on student outcomes when compared to traditional instruction.

METHODOLOGY

OBJECTIVES OF THE STUDY

1. To find out significant gender differences in the attitude of secondary school teachers towards the use of technology in classroom.
2. To find out significant difference in the attitude of urban and rural secondary school teachers towards the use of technology in classroom.
3. To find out significant differences in the attitude of science and humanities Secondary school teachers towards the use of technology in classroom.
4. To find out significant difference in the attitude of secondary school teachers having experience up to 5 years and more than 5 years towards the use of technology in classroom.

HYPOTHESES OF THE STUDY

The following hypotheses have been formulated in the present study:

1. There will be no significant gender differences in the attitude of secondary school teachers towards the use of technology in classroom.
2. There will be no significant difference in the attitude of rural and. urban secondary school teachers towards the use of technology in classroom.
3. There will be no significant difference in the attitude of secondary school science and. humanities teachers towards the use of technology in classroom.
4. There will be no significant difference in the attitude of secondary school teachers having experience up to 5 year and more than 5 years towards the use of technology in classroom.

SAMPLING

In the present study purposive sampling technique of non-probability sampling was selected. Investigator approached the concerned persons for the collection of data. Investigator collected data from 116 teachers from different educational institutions of Hyderabad.

Selection of the Tool

Attitude scale constructed by Avinash Thapa was selected by the researcher in the present study.

Administration of the tool

In the present study the sample was drawn from the teachers of the different schools of District Hyderabad. The investigator visited the schools for the collection of data. Before administering the tool the investigator made everything clear to the teachers and explained them about the study in order to ensure reliable responses. The investigator approached the principals and head of the institutions and explained to them about the nature and purpose of the investigation. The respondents were assured that their responses would be kept confidential. Hence they are to be as honest and sincere in answering the questions. The respondents were asked to answer all items. No time limit was set. During collection of data all precautions were taken to prevent discussion and consultation between teachers. Data was collected and all the respondents were thanked for their cooperation. In this manner the data was collected from all the selected schools. Regarding the scoring of the collected data the investigator scored all the items of the respondents' tool.

SCORING PROCEDURE

After collection of data the first thing done was scoring. Necessary instructions have been provided at the beginning of statement. The scoring procedure of the Attitude scale used in the research is very simple. The scheme of scoring is:

Favorable statements are scored from Minimum to Maximum

SA	A	UD	D	SD
1	2	3	4	5

Unfavorable statements are scored from Maximum to Minimum

SA	A	UD	D	SD
5	2	3	2	1

Where, as SA- stands for Strongly Agree

A- Stands for Agree.

UD- Stands for Un- Decided.

D- Stands for Disagree.

SD- Stands for Strongly Disagree.

In this way the scores of all the 116 teachers were obtained.

STATISTICAL TECHNIQUES

In the light of the objectives of the study the investigator employed t- test for the analysis of data. The investigator calculated the mean, standard deviation, standard error of mean values, standard error of difference between mean and finally the t –test was computed.

ANALYSIS AND INTERPRETATION OF DATA

HYPOTHESIS-I The mathematical information related to the testing of hypothesis stating, there will be no significant gender differences in the attitude of secondary school teachers towards the use of technology in classroom is indicated in the **table - 1**

Table – 1: t-value of Mean scores of male and female teachers using technology in classroom

S.NO	Gender	Number	Mean	S.D	t-value	significance
1	Male	48	135.19	10.51	0.32	Insignificant at 0.05 level
2	Female	68	134.55	10.52		

*insignificant at 0.05level

** insignificant at 0.01 level

Interpretation

The above table shows that the calculated value of $t=0.32$ which is less than the table value for degree of freedom 114 at 0.05 level of significance. It reveals that there is no significant gender difference in the attitude of secondary school teachers towards the usage of technology in classroom. Hence the hypothesis stating that there will be no significant gender differences in the attitude of secondary school teachers towards the usage of technology in the classroom is accepted.

Hypothesis-II

The mathematical information related to the testing of hypothesis stating, there will be no significant differences in the attitude of rural and urban secondary school teachers towards the use of technology in classroom is indicated in the **table - 2**

Table – 2: t-value of Mean scores of rural and urban teachers using technology in classroom.

S.NO	Locality	Number	Mean	S.D	t-value	Significance
1	Rural	35	132.21	9.76	2.74	0.01 level significant
2	Urban	81	137.96	11.65		

**significant at 0.01 level

*significant at 0.05 level

Interpretation

The table shows that the calculated value of $t=2.74$ which is greater than the table value for degree of freedom 114 at 0.01 level of significance. It reveals that there is significant difference in the attitude of rural and urban secondary school teachers towards the usage of technology in classroom. Hence the hypothesis stating that there will be no significant differences in the attitude of rural and urban secondary school teachers towards the usage of technology in the classroom is rejected.

Hypothesis-III

The mathematical information related to the testing of hypothesis stating, there will be no significant difference in the attitude of secondary school teachers having experience upto 5 years and more than 5 years towards the use of technology in classroom is indicated in the **Table - 3**

Table – 3: t-values of Mean scores of teachers with experience up to 5 years and more than 5 years.

S.NO	Experience	Number	Mean	S.D	t- value	significance
1	Upto.5 years	52	138.18	9.30	1.64	0.05 level Insignificant
2	More than 5years	64	134.84	12.68		

*insignificant at 0.05 level

Interpretation: The table shows that the calculated value of $t=1.64$ which is less than the table value for degree of freedom 114 at 0.05 level of significance. It reveals that there is no significant difference in the attitude of teachers having experience up to 5 years and more than 5 years of secondary school teachers towards the usage of technology in classroom. Hence the hypothesis stating that there will be no significant difference in the attitude of secondary school teachers having experience up to 5 years and more than 5 years towards the usage of technology in the classroom is accepted.

Hypothesis-IV: The mathematical information related to the testing of hypothesis stating, there will be no significant difference in the attitude of secondary school science and humanities teachers towards the use of technology in classroom is indicated in the **Table - 4**

Table – 4: t-value of Mean scores of Science and Humanities teachers using technology in classroom.

S.NO	Subjects	Number	Mean	S.D	t-value	significance
1	Science	57	133.71	9.85	2.35	Significant at 0.05 level
2	Humanities	59	138.55	12.28		

*significant at 0.05 level

** insignificant at 0.01 level

Interpretation

The table shows that the calculated value of $t=2.35$ which is greater than the table value for degree of freedom 114 at 0.05 level of significance it reveals that there is significant difference in the attitude of science and humanities teachers towards the use of technology in classroom. Hence the hypothesis stating that there will be no significant difference in the attitude of science and humanities teachers towards the use of technology in the classroom is rejected.

GENERAL CONCLUSIONS: In the light of analysis and interpretation, the investigator arrived at the following conclusions:

The Male and Female teachers do not differ significantly in their attitude regarding the usage of technology in classroom. The Rural and Urban teachers differ significantly in their attitude towards the usage of technology in classroom. The teachers having experience below 5 years and

above 5 years do not differ significantly in their attitude towards the usage of technology in classroom. The science and Humanities teachers differ significantly in their attitude towards the usage of technology in classroom.

EDUCATIONAL IMPLICATIONS

- 1) The present study has implications for administrators, principals and headmasters of the educational institutions that they can take necessary initiatives for developing willingness of the teachers to the use of technology in classroom.
- 2) It will also benefit the content designer to design appropriate content.
- 3) It will also help the institutional heads to plan and conduct some training courses for students and teachers providing specific emphasis on technology.
- 4) The findings have implications for research scholars that they can conduct further research work related to the topic.
- 5) The present study has implications for the teachers, to refine their attitude so that right kind of gap between programmes and desirable outcomes can be taken out.

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