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ATTITUDE OF SCHOOL TEACHERS IN RADHAPURAM ASSEMBLY CONSTITUENCY TOWARDS TECHNOLOGY INTEGRATION IN CURRICULAR TRANSACTION

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Attitude of School Teachers in Radhapuram Assembly Constituency towards Technology Integration in Curricular Transaction

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CHAPTER-I

1.1 Introduction

"The new technologies challenge traditional practices both of teaching and learning and by reorienting how teachers and learners gain access to knowledge have the capacity to transform teaching and learning processes. ICTs provide a variety of powerful tools that may help in converting the ongoing isolated, teacher-dominated and bookish classrooms into attractive, student-dominated interactive knowledge environments" (The UNESCO World Education Report, 1998).

In the context of global policy, society and global economy, each and every country is seriously thinking of heightening the degree of quality in the system of education. Globalization has permitted technical progress in the communication field which enables the users to access and exchange information at any time and from any place in the world. Technology thus needs to play a vital role in education. In today's competitive world the child is required to possess the skill sets, which are beyond subject knowledge and require concentration, power of assimilation and retention. In this regard, the role played by smart classroom is quite important and noteworthy. The word SMART stands for Specified, Measurable, Achievable, Relevant and Time Restricted. Smart Class is a digital initiative of Edu comp, launched in the early 2004, which is rapidly transforming the way teachers teach and students learn in schools with innovative and meaningful use of technology. A classroom is an enclosed environment where teaching and learning take

place. It is the most important place of a learning institute and it allows for the transition of knowledge from a teacher to a group of students. The use of technical advances in the fields of signal processing, web technology, hardware, and applications in a smart classroom aids knowledge sharing. The term "smart" here is used in the sense of ICT-enabled, referring to something that has done traditionally without ICT Needless to say, introducing ICT has deep implications on the all the involved processes and pedagogy. A smart classroom is made up of various components that work together to provide an interactive and engaging learning environment that enhances teaching techniques, develops students' abilities, raises their academic level, and allows them to engage more actively in the learning process. Different technology components such as interactive boards, audio/video elements, management system, and mobile computing may contribute to a smart classroom, also in synergy with each other. Side by side with these, innovations in pedagogy, regarding content delivery, student engagement, and assessment, also contribute to making a classroom smart.

In the ongoing situation, this demand of technically skilled youths & professionals is in demand year after year. Technically trained people in the 21st century should know the way of using ICT tools and its related technologies, plus audio, video, and other media and multimedia equipment's which facilitate masses to work

efficiently at workplace and in their day to day lives, using such tools like spread sheets for calculation, budgeting and building scenarios, graphic and multimedia software's for presentations; data bases for research; and networks for establishing contacts with others. A common reason that results in the use of ICTs in the classroom has been to train the young generation of learners efficiently for a workplace where ICTs, particularly computers, the internet and other commonly used technologies, are becoming common. Technological efficiency, or the ability to use ICTs effectively and efficiently, is thus seen as a competitive edge in a progressively globalized world of work force.

Classroom is the place where students learn and gain knowledge. Due to the advancement of science and technology this typical concept is getting replaced by a new concept/process called the "Smart Classroom", where teaching learning process happens in a more interactive way and students get more interested because this process consists of videos, pictures, PowerPoint presentations, etc. In ancient days "Gurukuls" were the place where students use to get taught by the Gurus, where this age-old system of books and copies where followed. But this system is getting replaced by new and modernized concept of "E-learning" and "Smart Classroom". A "Smart Classroom" is a classroom that has an instructor equipped with computer and audio-visual equipment, 3D animated modules, etc. The students are also thrilled at the concept

of innovation and interactive learning process. Digitized Classroom has not only made education interesting but also increased student performance, the concept of "Smart Classroom" is the new generation educational product which helps students gain more knowledge easily and is a step to the future of education procedure. The Smart Board interactive white board uses technology to detect and respond to touch interactions on the interactive whiteboard surface.

Learning becomes an enjoyable experience for students, improving their overall academic performance in school. Some of the advantages of traditional teaching include teacher-student interaction and instant feedback, which online components are notable to provide. The concept of 'Smart class' is introduced by Edu-comp, which is one of the largest education companies in India, that takes care of the entire education life cycle of students matching to universal standards. Classroom teaching and learning have become synonymous with the concept of Smart Classroom. There is great transition from conventional methods of teaching and learning to newer methods in Smart classrooms. The idea of smart classroom is of recent origin. There are well developed e-Learning materials nowadays available, which substitute the textual content of printed textbooks for every school subject has been optimally prepared with audio-visual lessons of different kinds. These teaching learning modules are interactive in nature. Advantages of these

types of lessons are that they are very user friendly and allow the student to progress at their own pace, speed and time. The good news about the systemic approach modules are plentiful. Smart class enables the teachers to deliver both learning and information as well, dynamically and immediately. It allows the learners to tap the knowledge resource of experts and catapult those messages beyond classroom walls and into the workplace. It lets the teacher to know through the magic of technology, who is learning, referring, and contributing and who is at a slow rate of learning. In spite of all these, many simply fail to embrace eLearning. The greatest change in the past 500 years has certainly been the rate of technological progress. GDP growth has been a sequence of three technologies hunting, farming, and industry each of which has grown 100 times faster than its predecessor. The next transformation possibly involving information technology, nanotechnology, robotics, artificial intelligence could move the doubling period of GDP from decades to weeks and is forecast to appear sometime this century. Learning through smart classes gains popularity and momentum day by day.

Emergence of technology in education provides varied opportunities to the students. Science and technology has always been an instrument in bringing efficiency and improvement in the world of education. It has provided valuable help to the students and teachers, enriching goals of education. Towards the end of 20th

century, the advent of the computer with internet in education marked the first era with which most of the individuals could have a means to exposure. Internet has changed the attitude of pupils, teachers towards education. Blending of curriculum and technology improves the learning process, betters the standard of teaching, and increases level of evaluation, which leads to overall development and growth of students. Curriculum embedded in technology should be appropriate and as per the needs of the students, which enables them to achieve the aims of education. Students can access technology not only for educational prospects but for other co-curricular activities. This will certainly bring drastic changes in the educational system paving the way for better students, and securing their bright future. Assimilation of technology with education is an asset to impart quality education. In today's modern world technology is a decisive tool to transform lives. To fulfil the needs of techno-savvy and modernized students, technology has become the integral part of every classroom. Technology in the form of smart board has occupied every school, which is helpful to the students as well as teachers. But teachers need to be trained before handling the technology to put it to profitable use in the classroom teaching.

Technology in the classroom is constantly changing and improving. Learning from books is not quite obsolete, but students use the Internet and their computers just as much either inside or out of the classroom. People read books on

Kindle or the iPhone. Teachers no longer track students‟ grades in books; instead they post them on websites where parents can easily access them. Schools use DVD players and video projectors linked to computers. The chalkboard has also been replaced by the dry erase board, which is now being taken over by technologically enhanced whiteboards.

1.2 Technology in Teaching

Technology in education is being developed with an aim to make education more widely available to all and also to improve the quality of education, which is the order of the day and need of the hour. B.F. Skinner's work on learning and his emphasis on the importance of reinforcement in the learning situation have created a revolution in the field of educational technology. The relationship between the objectives of education and instructional technology appears to be reciprocal. The most distinctive feature of modern society is its acquisition of science based technology. The changes that occur as a result of its impact are broadly described as effects of modernization. In modern classroom, knowledge in every subject is cumulative, so that as each year passes, there is more to be learnt.

The main aim of education should be on the awakening of curiosity, sharpening the stimulus of reactivity, developing proper interests, attitudes and values in the learners and building essential skills such as independent study and capacity to think and judge by self.

Educational technology is thus largely a classroom supplement. Teachers and learners now have easy access to film projectors, slide projectors, tape recorders, audio cassette recorders, video cassette players, overhead projectors, radio, television and computers etc. The value of teaching aid does not depend wholly on its quality itself but also upon the way in which it is used and the particular time by which it is used.

1.2.1 Role of Technology in Fostering a Student-Centric Learning Environment

With the adoption of 21st century technology, there is a major paradigm shift in instructional methods to reflect the challenges present in today's society. The role of the teacher and student has changed dramatically over the years. The teacher was responsible for disseminating information to students. The students' primary responsibility was to consume and retain as many of the facts and figures as they could. In student-centric classroom, the role of the teacher changes to that of facilitator and resource person often acting as a catalyst, the teacher helps the student to promote his or her individual learning. With the use of technology, the teacher can extend his or her role beyond the classroom. Technology provides students with the opportunity via E-mails or discussion forums to ask questions and also collaborate with other students in the understanding of the course content. This use of technology virtually gives the students access to the teacher at all times where they can

ask and receive answers to their questions without having to speak in front of large group. It also makes possible for the students to access lectures, demonstrations or discussions when required, rather than being laid down to a fixed schedule. These resource materials are stored and available in digital format (CD - ROM or DVD) and can even be delivered on demand via the Internet. Each technology is likely to play a different role in students learning, e.g., word processing and e-mail promote communication skills, database and spreadsheet programs promote organization skills and modelling software promotes the understanding of science and mathematical concepts. There are numerous multimedia programs designed to meat the special needs of diverse learning, a student learning English language would benefit from a computer program where they could learn the language at their own pace. They could spend as much time as needed on the computer, without feeling pressured to keep up with other students. One cannot expect all teachers to teach in this fashion but a computer program or multimedia application may have the capabilities of doing so without taking additional time away from other students. By utilizing such programs a single teacher can employ many more resources and methods within one class room, rather than teaching the information in one manner to all students.

1.2.2 Information and Communication Technology (ICT) In Education

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The quality of Education depends to a great extent on the quality of teachers. It is the known fact that quality teachers opt for an innovation in their teaching aspect through integrating technology in the Classroom Instruction to give the best to student-teachers. Since Technology is a powerful tool for problem solving, conceptual development and critical thinking help to make the learning process much easier for the student-teachers. To be effective in the classroom Instruction, Teacher-educators should acquire the knowledge and skills to use the new challenges in promoting innovative teaching strategies that are student entered collaborative, engaging, authentic, self-directed and based on the development of higher order thinking skills with respect to handling classes for student-teachers which aims to achieve high academic standards. Globally, educational systems are under great pressure to adopt innovative methodologies and to integrate New Information and Communication Technologies (NICTs) in the teaching and learning process, to prepare students with the knowledge and skills they need in the 21st century. Apparently, teaching profession is evolving from an emphasis on teacher-centered, lecture- based instructions to student-centered interactive learning environments. ICT can be used as a tool in the process of education in the following ways. ·

Informative Tool: It provides vast amount of data in various formats such as Audio, Video, documents.

Situation tool: It creates situations, which the student experiences in real life. Thus, simulation and virtual reality is possible.

Constructive Tool: To manipulate the data and generate analysis.

Communicative Tool: It can be used to remove communication barriers such as that of space and time. Use of ICT in education develops higher order skills such as collaborating across time and place and solving complex real world problems.

1.2.3 Advances in Educational Technology

Verbal explanations are basically abstract and so are not easily grasped and retained. Teaching aids help to create a dynamic learning environment, by shifting emphasis from the spoken work to an instructional methodology dependent on Audio –Visual Communication media. They make a lasting effect on the learner's mind. In India, medical facilities have expanded enormously over the years. In recent days' new communication technology helps to accelerate the pace of development in the country. The country is on the threshold of a new communication revolution of which computer, satellite television and video have made major development. It must be remembered that in the modern technological era every new generation of students must be better informed and has to learn more than the proceeding generation. This can be achieved only if the quality of teachers and teaching.

Learning processes becomes superior or at the least on par with the technological advancement in education.

1.2.4 Importance of Smart Board Technology

i. Internet, mobiles, smart phones, i-pads, video games etc. are the basic necessities of today's generation. Techno crazy students spend optimum time with technology. This technology has its pro and cons on the minds of young generation.

ii. Technology should be used judiciously to avoid its adverse effects on the young minds.

iii. Smart board technology eradicates the spread of dust particles due to use of chalk. It reduces the chance of health issues to the students as well as teachers.

iv. Smart board technology reduces the burden of the bags carried by the students, as the textual content is available in smart board.

v. Smart board has enlightened the students towards their social responsibilities.

vi. Technology enables the students to face the challenges and grab opportunities in this competitive world.

vii. Smart board technology mould their lives by providing students professional training, for future endeavour.

viii. Ample opportunities will provide to the students by the use of technology to enrich their knowledge and skills.

ix. Technology enables the students to participate and win in the race of changing modern world.

x. Technology has improved the attendance of students in educational institutions.

xi. It has helped the school administration to raise the standards of school and overall educational process.

The concept of attitude has been visualized by educationists in different ways as it occurs both in scientific investigations and personal opinions. Social psychologists define attitudes as those states of readiness, beliefs or ideas with an emotional bearing to it. Attitudes have intellectual, biological, social and emotional components that are derived from experiences and exercise a determining influence upon a person's behaviour. In the Indian society, education is mingled with values. Each and every family follows the traditional, moral, ethical, religious and social values. Every person who follows the norms and values has a good attitude in all areas of his life. The people in the society have both positive and negative attitude towards the field of education. The positive attitude towards education in the Indian society is value-based curriculum, student teacher relationship, and professional ethics, whereas the negative attitude towards education could be based on lower levels of teacher-pupil interaction, boredom in studying the same old curriculum and commercialization of education. Allport has defined an attitude as a "mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individuals' response to all objects with it is related". Having viewed

the above facts in the present trend in education, it is necessary for everyone to equip themselves with changes in their life for their own betterment.

1.2.5 Attitude towards Technology

Educational Technology consists of a wide range of hardware, software and technical equipment used in schools to promote learning. Computer, CD-ROMs, the Internet, email, television monitors, video equipment and satellite systems for distance learning are some of the education technologies that schools are using. Most educational researchers, especially those who have examined large numbers of studies (meta-analyses), agree that if used appropriately, technology can improve education in the effect size range of between 0.30 and 0.40(Kulik,2002; Waxman, Connell , & Gray,2002). Technology also has proven to be an effective motivator for students with specific learning needs (such as language learning) and for accommodating learning styles. Students working in collaborative team-learning settings appear to function better when learning events are accompanied by technology use. Another important use of technology is to provide distance-learning opportunities to students who otherwise would not have access to course offerings. Distance Education is especially important to students in rural settings because courses are less available due to lower population densities. Obviously, addressing the needs of all students through technology use is a long term and system wide effort. School leaders, therefore, are

expected to possess not only general leadership skills but also technology leadership skills. Technology leadership but require attention to some specifics of technology, especially those related to providing hardware access, updating rapidly changing technology and recognizing that professional development and the use of technology are constantly evolving

1.2.6 Smart Classroom

A Smart Classroom is equivalent to a traditional lecture style teaching space that has technological equipment's to be used to aid and enhance instruction and to enthuse all learners. Classrooms are categorized based on the equipment's available: A search of the literature does not yield a single unified definition of smart classroom. Most articles characterize a classroom as "smart" depending on the equipment installed. The equipment found in a smart classroom may vary due to the requirements of the institution that created the classroom. Many institutions have several configurations of smart classrooms. Some contributing factors to the configuration decision are the size of the classroom, the needs of the discipline being taught in the classroom, the budget, and the technology available at the time that the classroom was built

Need of Smart Class: The concept of smart class education is certainly a blessing to the students of the 21st century. Technology is altering the way life functions. In the modern age technology, the smart class is needed due to the following reasons

Provision for Real Experiences: Smart boards are much smarter when it comes to field trip which is impossible with textbooks. A field trip to the deserts of Sahara or the rainforests of the Amazon Basin becomes easy with visuals in the smart boards of smart classroom. These visuals are certainly more attractive than those descriptions in a few lines of a textbook.

To Avoid Health Problems: Some students and teachers have problems with chalk dust and they are likely to suffer from allergic reactions. Provision for best education for all kinds of students.

Provision of Individual Difference: A classroom has students with diverse power of understanding and learning, and studying from notes and other materials becomes difficult for some students.

Ease of the Learning Process: The use of smart classes and modern technology gratifies the learning process for all students.

1.2.7 Benefits of Smart Classroom Teaching

Interactive: Smart boards are interactive, bestowing the chance for high school students to take part in the instructional process. Students who are engaged in the instructional process are likely to learn more. Interactive whiteboards are equipped with the ability to touch, write and to draw to demonstrate understanding and students work can be saved to be use later. The interactive whiteboard also provides an approach for quick

assessment with immediate feedback. Students can complete multiple choice assessments using clickers that correspond with the whiteboard.

Immediate Feedback: To augment by quickly identifying areas that needs to be reviewed.

Multiple Technologies and Diversity of Software: The possibilities of accommodating other technologies and a variety of software packages are impressive. A video camera, camera or document camera can be attached to the whiteboard for instruction. In a high school science class, the dissection of a frog can be projected on to the whiteboard. Through even greater technological progress, the viewing lens of a classroom microscope can be connected to the interactive board. It presents the same technological capabilities as a computer. Students can access or contribute to the presentation via a notebook or tablet.

Data Storage and Retrieval: Interactive whiteboards can store the data generated during the class lecture and later retrieved for review or can be e-mailed to an absent student. Everything that is done in a high school class, whether student or teacher developed, can be saved and later altered. Instruction becomes extensive for across classes, and materials can then be downloaded, printed or even e-mailed to absent students.

- Improves teacher's effectiveness and productivity in class.

- It brings abstract and challenging curriculum concepts inside classrooms.
- Makes learning an enjoyable encounter for students.
- Augment academic performance of students.
- Enables quick formative assessment of learning outcomes in class.
- It also enables teachers to quickly assess and evaluate the learning achieved by their students in class.
- Students come across the sessions in smart class interesting and fulfilling, it is an innovation in the method of teaching.
- Smart class has a great visual influence on our learning and it helps students understand and retain topics better.
- The smart class programme makes the classroom sessions very interesting and interactive.
- Children are not sleeping in the classroom anymore.
- Smart class is bringing digital innovations in the classrooms.
- Teaching and learning have indeed become very appealing and effective.

1.2.8 Role of Educational Media Programmes

Needless to say, the role of educational media and its importance in this stupendous effort is obvious and this has been realised and acknowledged at least at the conceptual level and to a considerable extent at the implementation level. Education can thus reach a take off stage with the help of novel technologies and can be made

available for achieving universalisation of education and qualitative improvement of school education level. This would remove differences in the educational facilities available to the disadvantaged and provide individualised instruction to learners conveniently suitable to their needs and pace of learning.

In this regard, the International Commission on Education for 21st century, 1996 indicated that, "the exposure of children to multimedia will bridge the gap between the privileged and underprivileged sections of society because the latter group will have the opportunity of learning from expensive instructional equipment's and materials which the economically advantaged people would have acquired on their own or through specialized paid centres. Thus the establishment of multimedia centres can pave the way for quality and equality in education for all.

National Focus Group Position paper on Educational Technology, 2005 states that the country has now reached a stage where education must take recourse to the discipline of Educational Technology in organising education because the challenges that the country faces today are far graver than before; bring about a sea change in education can possible only if one takes recourse to using ET in micro and macro 31 modules, using any technology whether old or new that is appropriate. There is no other option if one is thinking of not leaving any child behind and providing learners with education that is

high both in equity and quality. It is accountable to mention that the use of educational media programme is a very crucial input towards enhancing the quality of education and they are also able to wipe out gaps between rich and poor, urban and rural, skilled and unskilled manpower, availability and accessibility, trained and untrained, equipped and unequipped, motivated and non-motivated, interesting and disinteresting methods of organising secondary school activities. The function and importance of electronic media viz. radio, television, slide projector, overhead projector, microcomputer cannot be ruled out. Needless to say that in this age of e-learning with growth of new media of communication, the use of traditional old media is being replaced slowly by them. 1.8 Significance of the problem Considerable changes in the field of educational technology took place after 1986. Under the NPE 1986 new educational technology scheme was launched by Government of India with an aspect to increase the reach and quality of education provided to a large number of learners. At planning and policy making level constant efforts are initiated to materialise the goals of NPE-1986 and POA-1992 for better utilisation of educational media at school.

According to National Curriculum Framework 2005, the key to meeting the challenge of attaining quality in education is through the appreciation of the role of educational technology as a channel of change in the classroom, which includes the teacher and the teaching

learning process. Educational media help in adding elements of reality for example, including pictures or highly involved computer simulations in a lecture. Media can be used to support the educational activities like to gain attention of the students, recall pre-requisites, presenting objectives to the learners, presenting new contents to the students. So there is a need of innovative educational media to make teaching learning process more effective. Through the extended exploration of ideas and techniques for education a new realm of theory has developed under the name, "evolutionary education psychology". Evolutionary Educational Psychologists like David Geary and David Bjorklund, purport that there is a difference between how children would prefer to learn and how they currently learn. In this framework studies are required that can guide the teachers to use different educational media in their teaching. Apart from this the teachers‟ role is to select the appropriate educational methodology for establishing student engagement, both affective and cognitive. But the convincing use of educational media in a classroom depends upon the attitudes of teachers and educators to apply technology in schools‟ daily pedagogical practices. Various studies are there on studying the attitude of educators. Kishore (1996) made an attempt at the understanding of the issue of relationship among gender, science, technology and mathematics while Singh (2015) studied the attitude of urban and rural male and female teachers about ICT.

Panchaiyappan (2016) studied the attitude of teachers of higher secondary school with respect to gender, teaching experience, educational streams and type of management. There is a significant relationship between the experience level and favourable attitudes towards the use of ICT tools.

1.2.9 Role of Teacher in the Utilization of ICT in Teaching

Teaching is one of the most complex human endeavours imaginable. Teachers arrange content information around an organizing idea, determine appropriateness of available resources, and make judgment about the people involved. Generally, the teacher serves as decision maker regarding what to teach, when to teach and how to teach it. The teacher is often the primary information of source. The teacher has to play a pivotal role for the success of the ICT. The teaching aids either modern or traditional only supplement the efforts of the instructor to enhance the learning process. They cannot be a substitute the teacher. The technologies assist the teacher to do their work in an efficient manner to achieve the educational objectives. Each Technology has its advantages and limitations and no single technology is useful for all types of learning. While selecting the media, the criteria to be kept in mind are Availability, Accessibility, Acceptability, Cost and Validity of the media. The fear about technology among the teachers is that it will replace the teacher and will create unemployment. No technology can produce new

things because output depends on the nature of input. The input aspect is more important and it depends on the teacher.

The instructional material cannot be prepared by educational technology. Therefore, ICT will not replace the human teacher but will help them in improving teaching-learning process. The use of ICT is very important for providing opportunities to students to learn in an informational and technological world. There are some barriers in integrating ICT in teacher education like lake of confidence, lake of time, lack of accessibility, lack of technical support etc. To overcome these obstacles teacher must be aware of how to use technology in classrooms, should acquire ICT skills, knowledge and positive attitude regarding the effective use of technology to support learning by their students, to effectively harness the power of the new ICT to improve learning, the following essential conditions must be met. They are summarized below. Student-teachers and Teacher-educators must have sufficient access to digital technologies and the internet in their classrooms, schools and teacher education institutions. High quality, meaningful and culturally responsive digital content must be available for Teachers and Learners. Teacher-educators must have the knowledge and skills to use the new digital tools and resources to help all students achieve high academic standards.

1.2.10 Smart Technology and the Teacher

According to Fullan (1991), Educational change depends on what teachers do and think. It is as simple and as complex at that. In classrooms today, the role of the teacher needs to change from the traditional role of prescriptor to that of orchestrator of learning – which necessitates the designing of ICT integrated classrooms promoting higher order cognitive skills (Fullan, 1991). Teachers are rich resources in the implementation of any innovation, for they bring with them rich practical know-how of the classroom, for example, the Japanese lesson study approach has shown that classroom-based material developed jointly by teachers and external consultants provide resources that can be practically used in the mathematics lessons (Isoda, et al. 2007). Teaching is becoming one of the most challenging professions in our society where knowledge is expanding rapidly and much of it is available to students as well as teachers at the same time (Perraton et. al.2001). As new concepts of learning have evolved, teachers are expected to facilitate learning and make it meaningful to individual learners rather than just to provide knowledge and skills. Modern developments of innovative technologies have provided new possibilities to teaching profession, but at the same time, have placed more demands on teachers to learn how to use these new technologies in their teaching (Robinson and Latchem, 2003).

"ICT has highlighted some significant changes in the teacher's role

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- Change in relationship with pupils.
- Change in role of facilitators and managers who support learning.
- Change in the content and scope of teaching.
- Changing Locus of control from teachers to learner.

ICT do not meet the task to the attachment or supplement to teachers preparation, but they offer the infinite access to information which is accessible without effort due to internet" (Gilmore, 1995). "Although today, access to new technology is provided in most schools, the process of technology integration into every day teaching is still very low, and the full potential of computers and software for mathematics teaching and learning is far from being tapped. Among the various reasons for this phenomenon, NCTM (2000) expressed probably the most crucial concerns of in principles and standards for school mathematics: The effective use of technology in the mathematics classroom depends on the teacher. Technology is not a panacea. As with any teaching tool, it can be used well or poorly. Teachers should use technology to enhance their students' learning opportunities by selecting or creating mathematical tasks that take advantage of what technology can do effectively and well-graphing, visualizing and computing (Cuban et al., 2001).

On examining the teacher's role in classrooms with computers and argued that teachers need to teach the

process of learning rather than its products. The conventional learning skills such as locating, collating and summarizing information and identifying connections and contradictions within a body of information, all need to be explicitly moved to the centre of the curriculum. The developments of such skills need to be supported using appropriate forms of software. This requires the explicit teaching of ways of organizing cooperative activities involving computers whether in face-to-face groups around a single machine or through cooperation at a distance via conferencing or email (Scrimshaw, 1997). "Integration of technology in classrooms can significantly transform teaching and learning. New technologies offer new ways of dealing with traditional content in many mathematical areas. Teachers are the key to whether technology is used appropriately and effectively and technology increases conversation, sharing and learning among students and between students and teachers. Technology Aided Learning (TAL) takes students to higher level of thinking/processing and enables them to become self- learners with the convergence of technologies – the computer, CD-ROMs, video and web-conferencing, internet, broadband and television, to make, it possible for cradle to grave learning to become a reality. The digital world today enables children to learn anything from mathematics to music from teachers across the country and the globe. Numerous results of studies into the impact of ICT on students' learning have provided

convincing evidence of its positive impact on learning gains and students' motivation. A digitally smart society requires smart teachers who are "Digital Literate" Teachers must be multi-skilled in order to manage the multi-skill demands of a curriculum. Information and communication technology as a learning tool has enormous potentials. There is enough scope for learning to dynamically interact and collaborate with content, teachers learning resources to construct their own meaning. In the ongoing age of science and technology, the traditional teaching practices are not adequate enough to arouse interest among the students nor do they fulfill intellectual, psychological and emotional needs to the learners in the new millennium. "Traditional methods of imparting knowledge such as lectures, books and conference papers are characterized by a linear progression of information. Human minds are more adaptable than this; using non -linear strategies for problem solving, representation and storage and retrieval of information. Hypertext software enables teachers to provide them students with the non-linear means to match non-linear thinking processes (Semenov, 2000). Computer tools can help students or teachers to manipulate complex data sets and help develop mathematical understanding (Cobb and McClain, 2002) tools can help learners to picture scientific ideas or to develop conceptual understanding (Jonassen, 2000). ICT use by pupils and teachers in the case study schools led to

positive motivational outcomes, supporting a focus upon learning and tackling of learning task. Technology environments allow teachers to adapt their instruction and teaching methods more effectively to their students' need. By integrating educational tools into their everyday teaching practice, they can provide creative opportunities for supporting Students Learning and Fostering the acquisition of mathematical knowledge and skills (Don Passey et al.2004).

ICT changes rapidly and new innovations offer new possibilities for teaching and learning these not only open up new technologies to influence the existing curriculum more effectively or more efficiently but change the nature of that curriculum by altering the content of what needs to be taught, such as in the area of digital literacy with use of electronic texts or the progression of how a topic like algebra can best be taught in mathematics. The teachers who are already regular users of ICT have confidence in using ICT; perceive it to be useful for their personal work and for their teaching and plan to extend their use further in the future. The factors that were found to be most important to teaching were: making the lessons more interesting, easier, more fun for them and their pupils, more motivating for the pupils, and more enjoyable (Cox et al., 1999). Similarly, those teachers who are motivated and have strong commitments to their pupils learning and their own professional development will evidently integrate computers more easily within their teaching"

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(Moseley et al., 1999). He further found that teachers who successfully use technology in the classroom have positive attitudes to ICT and focus on pupil choice and individual study rather than teacher direction. The range of software that is available for subject teachers also encourages some teachers to take ICT.

New technologies offer new ways of dealing with traditional content in many mathematical areas. Whenever technology is used for teaching mathematics, it is the responsibility of the teacher to decide when technology can effectively improve learning opportunities and which kind of technology is appropriate to reach objectives of the lesson" (Lawless and Pellegrino, 2007). Accordingly "Technology should be used widely and responsibly, with the goal of enriching students' learning of mathematics" (NCTM, 2000). Since technology allows for more student-centered approaches including active learning, mathematical experiments, or discovery learning, usually the role of a teacher needs to transform from being instructor to being a coach or mentor for students (Bruner, 1961). The level of technology used by The level of technology used by the teacher significantly affected student academic achievement in mathematics in a comparison of fourth and fifth grade teachers and their students. Students whose teachers were high level users of technology in the classroom scored significantly better than did students whose teachers were low level users of technology in the classroom. Teachers who were high

level of users were differentiated from teachers who were low level users in terms of frequency and extent of use of computers with students, instructional methods used with technology, and perception of influence technology on student learning and behaviour.

The information and knowledge society provokes a continuous change in the role and mission of teachers. Being a teacher in the knowledge society requires new specific competences; a teacher has to deal with new knowledge and new ways of assessing knowledge, a teacher has to deal with a networked world and with new type of cooperation and collaboration, a teacher has to deal with a society in which knowledge plays a crucial role, a teacher has to deal with lifelong learning. The networked knowledge society results in teacher working in a more collaborative way, not only locally in their school, but regionally, nationally and also globally. The teaching Profession, therefore, needs to evolve strongly and quickly. Clearly, it appears that teachers are the key agents in the education system and are instrumental in the revolution of education"

1.3 Significance of the Study

In today's world, technology has made a wealth of knowledge available to students. Information is present in almost every possible way that any learner, whether gifted or slow learners, can find and use the necessary material to gain knowledge. Teachers need to prepare students for a technical world requiring self-initiative in learning,

precision in processes and the ability to identify and analyze information. The traditional approach of giving lectures and taking notes has lost its effectiveness around education. In efforts to grow academics, it must be considered that differentiated teaching and learning modalities are necessary for better conceptual development. It is the education system's responsibility to use these ideas to comprehend student interests and orchestrate educational progression throughout childhood and adolescence. Information and Communication Technologies (ICT), has changed from being a technology of information & communication to a curriculum creation and transmission system for learners (Menon,A,2015).

Education has been benefited through computer technology in more than a few approaches and at various stages. From each the sociological and the economical point of view, technology has made an impact on instructing and learning. A number of institutions within the developed nations are providing guides through computer technologies similar to interactive multimedia, computer conferencing and the internet. So as to manage with the technological revolution in the educating system of the developed countries it is necessary to include this technological advancement within the Indian lecture room. Smart boards are modern technological means that use and create an attractive learning environment. It provides students with an effective learning environment different from regular learning, increases their level of

interest and allows them a better chance to participate (Tsayang, Batane & Majuta, 2020). The smart board is not just a teaching tool used by the teacher but also enhances classroom interaction between the teacher and students and between students and the educational material. Thus, it allows students to participate in the learning process based on verbal and non-verbal interactions (Al-Sallehi, 2019) so that the student is an active participant in his knowledge and encourages verbal interaction through the sharing of ideas as well as the coexistence of students with the educational situation (Jelena, Daliborka & Jelena, 2017).

In this context, the smart board is a supportive educational method that helps students acquire knowledge on their own by supporting interaction, dialogue, discussion and presentation of educational material in an attractive way. This enables students to acquire skills better than the usual teaching method (Farah, 2011). Studies (Zincume & Marimuthu, 2022) have shown that teaching using smart boards is more enjoyable and increases students' focus, understanding and interaction with the learning material through the practice of successful discussions. The use of technological techniques in the learning process is seen as one of the primary things at present, and it works to improve the quality of education. It is considered one of the events and strategies adopted by universities to provide highquality education to their students (Al-Sallehi, 2019). Today the

students learn through internet based system, submit their assignment on line, hold discussion with the educators and counsellors. ICT is the systematic process of collecting and analysing information to increase our understanding of the phenomenon under study. It is the duty of the researcher to contribute to the understanding of the phenomenon and to communicate that understanding to others.

Smart boards are considered one of the technological techniques that can be used to provide quality education based on the use of smart boards with high efficiency in teaching. This lies in teachers' creativity and skill in using them (Tsayang, Batane & Majuta, 2020). Many studies have shown that the use of the smart board improves the educational process and makes the teacher and the student more interactive (Sharman, 2010). It provides a qualitative learning environment different from the usual learning contexts and as new technologies that provide interactive teaching aids capable of changing the usual teaching patterns of teachers and students (Zincume & Marimuthu, 2022).

The modern technological revolution introduced new patterns of learning that depend on the digital environment in the educational process based on data computing and effective communication between the teacher, the student and the educational material. Therefore, smart boards are considered an attractive qualitative educational

environment. New technologies provide interactive teaching aids capable of transforming traditional education patterns into an educational experience that reduces effort at work, saves time and provides learning resources for students all the time (Tsayang Batane, 2020). In addition, it enables electronic communication between the teacher and the students in pursuing the development of students' learning stages. This development is revealed by students' application of what they have learned in solving homework and exercises and conducting educational presentations using smart boards (Bicak1, 2019). It also indicates the extent to which smart boards motivate students, arousing their motivation, and raising levels of learning skills. This is represented by the student's active participation in learning which is based on the critical thinking of knowledge content and educational process procedures (Heirdsfield, walker, Tambyah and Beutel, 2011).

Radhapuram is the first constituency in Tamil Nadu to get smart classrooms for all its schools. The dream project of the Tamil Nadu Assembly Speaker Thiru M. Appavu was creating 'Smart Classrooms' in all government and government-aided schools in Radhapuram Constituency. It was inaugurated by the Honourable Chief Minister Thiru M. K. Stalin through video conferencing on 31st July 2023. Smart Classrooms' have been created in all 295 government and government- aided primary, middle, high and higher secondary schools in the Radhapuram

Assembly Constituency. Schools are provided with uninterrupted power in all these smart classrooms with touch screens and webcams with the intention that there should be no interruption during teaching. The webcam facility enables the students to acquire new skills, mainly spoken English, with an expert teaching them from a particular place. Students in these schools are given spoken English training daily in three-time slots. Hence the investigators team undertaken a research project on Attitude of School Teachers in Radhapuram Assembly Constituency towards Technology Integration in Curricular Transaction.

1.4 Statement of the Problem

A smart classroom is a physical classroom integrated with Artificial Intelligence technologies to support the students and the teacher in the teaching and learning process. The smart classroom is a face-to-face classroom that employs active learning processes in combination with advanced forms of educational technology to deliver customized learning experiences A basic feature of a Smart Classroom is the ability to adapt itself to student needs in terms of the curriculum, course content, strategy and support. This is possible as smart classrooms are physical spaces endowed with digital devices to ease processes, but teachers and learners are the ones that must drive learning situations and, as a consequence, they must have the digital competencies and the ability to manage advanced solutions. The use of smart classroom enables students to

source for information collaboration with others while they are creating, attaching, connecting, and taking data with them from one location to another and from one group to the next. With the aid of modern technology, it has become easier for the students and teachers across the world to get a good grasp of the theoretical as well as practical knowledge. Through technology it has become easier to visualize anything in 3D and therefore the technology helps us to be conversant of the nuances of any concept.

The smart classroom is rectification to various problems that teacher as well as student faces inside the classroom. A student can learn better through visualization. All the students may not understand the teaching methodology of a teacher, but can understand by smart classes. This type of teaching creates an attention called as interest in them. So smart class technique is absolutely better. Such teaching helps to maintain the student's interest and focus by engaging them fully for the entire learning experience. Secondly, from the teacher's point of view, with the arrival of this digital initiative which is so practical to modern time and friendly to use, teachers can instantly evaluate/assess the learning achieved by their students in his/her class. If a concept taught is not understood, then teacher can repeat with greater clarity and emphasis. He/she can identify areas of student's strength as well as weaknesses. These ultimately help the students for better understanding. Smart

classrooms are very much beneficial in teaching-learning process in a school. We make use of an appeal to audio-visual senses of students in using smart boards. These smart boards are like a computer screen which is finely handled by a teacher and also by students to provide active participation. Some of the advantages for Smart board used inside a classroom. All the renowned institutions are setting a benchmark for using this concept. Now the students are thrilled at the concept of innovative and interactive learning process. The concept of digitized classroom has not only made the education easy but it gave the students power to enhance their performance. So the present study focuses on ***"Attitude of School Teachers in Radhapuram Assembly Constituency towards Technology Integration in Curricular Transaction".***

1.5 Title of the Study

Keeping in view of the above justification, the present study was entitled
as ***"Attitude of School Teachers in Radhapuram Assembly Constituency towards Technology Integration in Curricular Transaction".***

1.6. Operational Definitions of Important Key Terms

Attitude

Attitude is a person's established mindset or feelings toward something, shaping their behaviour. For teachers,

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this attitude influences their interactions with students and colleagues, significantly affecting the classroom environment, student motivation, and learning outcomes. In the present study the investigators measure the Teachers Attitude towards technology integration in curricular transaction, which in turn helps the teachers to be innovative in using modern technology in teaching

Technology Integration

Technology integration is defined as the use of digital tools and resources in educational settings, measured by the frequency and effectiveness with which these technologies are incorporated into instructional practices, learning activities, and administrative tasks.

Curricular Transaction

Curricular transaction is operationally defined as the methods and processes involved in delivering and engaging with the curriculum, including the use of instructional strategies, teaching materials, and assessment practices, as measured by the implementation of lesson plans, classroom activities, and evaluation of student learning outcomes.

Radhapuram Assembly Constituency

Radhapuram is a legislative assembly constituency in Tirunelveli district. The constituency is in existence since 1957 election. It is one of the 234 State Legislative Assembly Constituencies in Tamil Nadu.

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1.7 Objectives of the Study

1. To find out the level of attitude of primary school teachers in Radhapuram Assembly Constituency towards technology integration in curricular transaction.
2. To find out the level of attitude of middle school teachers in Radhapuram Assembly Constituency towards technology integration in curricular transaction.
3. To find out the level of attitude of high school teachers in Radhapuram Assembly Constituency towards technology integration in curricular transaction.
4. To find out the attitude of primary school teachers in Radhapuram Assembly Constituency towards technology integration in curricular transaction with regard to their gender.
5. To find out the attitude of middle school teachers in Radhapuram Assembly Constituency towards technology integration in curricular transaction with regard to their gender.
6. To find out the attitude of high school teachers in Radhapuram Assembly Constituency towards technology integration in curricular transaction with regard to their gender.
7. To find out the attitude of primary school teachers in Radhapuram Assembly Constituency towards

technology integration in curricular transaction with regard to locality of the school

8. To find out the attitude of middle school teachers in Radhapuram Assembly Constituency towards technology integration in curricular transaction with regard to locality of the school
9. To find out the attitude of high school teachers in Radhapuram Assembly Constituency towards technology integration in curricular transaction with regard to locality of the school
10. To find out the attitude of primary school teachers in Radhapuram Assembly Constituency towards technology integration in curricular transaction with regard to type of management.
11. To find out the attitude of middle school teachers in Radhapuram Assembly Constituency towards technology integration in curricular transaction with regard to type of management.
12. To find out the attitude of high school teachers in Radhapuram Assembly Constituency towards technology integration in curricular transaction with regard to type of management.
13. To find out the attitude of primary school teachers in Radhapuram Assembly Constituency towards technology integration in curricular transaction with regard to nature of the school.
14. To find out the attitude of middle school teachers in Radhapuram Assembly Constituency towards

technology integration in curricular transaction with regard to nature of the school.

15. To find out the attitude of high school teachers in Radhapuram Assembly Constituency towards technology integration in curricular transaction with regard to nature of the school.
16. To find out the attitude of primary school teachers in Radhapuram Assembly Constituency towards technology integration in curricular transaction with regard to educational qualification.
17. To find out the attitude of middle school teachers in Radhapuram Assembly Constituency towards technology integration in curricular transaction with regard to educational qualification.
18. To find out the attitude of high school teachers in Radhapuram Assembly Constituency towards technology integration in curricular transaction with regard to educational qualification.
19. To find out the attitude of primary school teachers in Radhapuram Assembly Constituency towards technology integration in curricular transaction with regard to years of experience.
20. To find out the attitude of middle school teachers in Radhapuram Assembly Constituency towards technology integration in curricular transaction with regard to years of experience.
21. To find out the attitude of high school teachers in Radhapuram Assembly Constituency towards

technology integration in curricular transaction with regard to years of experience.

1.8 Hypotheses

1. The level of attitude of primary school teachers in Radhapuram Assembly Constituency towards technology integration in curricular transaction is moderate.
2. The level of attitude of middle school teachers in Radhapuram Assembly Constituency towards technology integration in curricular transaction is moderate.
3. The level of attitude of high school teachers in Radhapuram Assembly Constituency towards technology integration in curricular transaction is moderate.
4. There is no significant difference between male and female primary school teachers in their attitude towards technology integration in curricular transaction.
5. There is no significant difference between male and female middle school teachers in their attitude towards technology integration in curricular transaction.
6. There is no significant difference between male and female high school teachers in their attitude towards technology integration in curricular transaction.
7. There is no significant difference between rural and semi urban primary school teachers in their attitude

towards technology integration in curricular transaction.

8. There is no significant difference between rural and semi urban middle school teachers in their attitude towards technology integration in curricular transaction.
9. There is no significant difference between rural and semi urban high school teachers in their attitude towards technology integration in curricular transaction.
10. There is no significant difference between government and government aided primary school teachers in their attitude towards technology integration in curricular transaction.
11. There is no significant difference between government and government aided middle school teachers in their attitude towards technology integration in curricular transaction.
12. There is no significant difference between government and government aided primary school teachers in their attitude towards technology integration in curricular transaction.
13. There is no significant association between primary school teachers' attitudes towards technology integration in curricular transaction and their nature of school.
14. There is no significant association between middle school teachers' attitudes towards technology

integration in curricular transaction and their nature of school.

15. There is no significant association between high school teachers' attitudes towards technology integration in curricular transaction and their nature of school.
16. There is no significant association between primary school teachers' attitude towards technology integration in curricular transaction and their educational qualification.
17. There is no significant association between middle school teachers' attitude towards technology integration in curricular transaction and their educational qualification.
18. There is no significant association between high school teachers' attitude towards technology integration in curricular transaction and their educational qualification.
19. There is no significant association between primary school teachers' attitude towards technology integration in curricular transaction and their years of experience.
20. There is no significant association between middle school teachers' attitude towards technology integration in curricular transaction and their years of experience.
21. There is no significant association between high school teachers' attitude towards technology integration in curricular transaction and their years of experience.

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1.9 Limitations

Limitations are those conditions beyond the control of the researches that may place restrictions on the conclusions of the study and their application to other situations. As far as the study is concerned the investigators finds certain limitations. They are

- The investigators have limited to test 5% level of significance.
- The investigators expect the sampling error.
- The truthfulness of the responses by the respondents.
- Respondent's mood, whim, interest, while answering.

1.10 Delimitations

"Delimitations are the boundaries of the study". Owing to the constraint of time the investigators have fixed certain boundaries for his study: they are

The present study has been delimited to Certain demographic variables namely gender, locality of the school, nature of the school, type of management, type of residence, educational qualification, and years of experience

- The investigators have taken samples only from Radhapuram Assembly Constituency.
- The investigators have confined their study only to the primary, middle and high school teachers.

- The samples were collected from the teachers working in Government and Government aided schools.
- The school teachers in the rural and semi-urban areas were alone involved in the study.
- The investigators have selected only 311 school teachers as samples for this research.

1.11 CHAPTERISATION

Chapter-I of this study contains a brief Introduction to smart learning environment, Technology in Teaching, Role of Technology in Fostering a Student-Centric Learning Environment, Information and Communication Technology (ICT) In Education, Advances in Educational Technology Importance of Smart Board Technology, Attitude towards Technology ,Need of Smart Class ,Benefits of Smart Class Smart classes, Role of Educational Media Programmes, Role of Teacher in the Utilization of ICT in Teaching, Smart Technology and the Teacher and a note about the need and significance of the study, objectives, hypotheses, limitations, and delimitations.

Chapter-II contains review of the studies related to the present investigation, done in India and in other countries related to attitude of school teachers towards technology integration.

Chapter-III talks about the methodology. method used to collect the data, variables, and tools employed, sample and

statistical techniques for the analysis were discussed in this chapter.

Chapter-IV contains the analysis and interpretation of the data.

Chapter-V contains the summary of procedure with, major findings and educational implications. It also includes recommendations and suggestions for the future research.

1.12 Conclusion

Education is the back bone of any society or country. Infrastructure growth is only depending on efficient, effective educational system. Technology plays a vital role in this era. There are three major components in the education system i.e. teacher, students and content. The teacher performs various role, act as guide, counsellor, as the transmitter of culture, builder of students‟ character and personality. Teacher is an effective and dominating factor among the ones contributing to educational improvements. The teacher effectiveness depends mainly on the teachers' attitude, characteristics and the classroom phenomena such as environment and climate, organization and management. Various commissions and committees have recommended methods of bringing about qualitative improvements in education. As a result, the teachers are motivated, inspired and endured to develop better curriculum, text books and teaching aids. But, all the efforts are meaningless unless teachers are not having the positive attitude towards educational technology. The teaching learning process has been

greatly influenced by rapid advances in smart classroom and Information and Communication Technology (ICT). Smart classrooms are electronically enhanced lecture theatres and classrooms. These rooms create new opportunities in teaching and learning by integrating computer, multimedia and network technology. The smart classroom is highly technological concept where presentation of content is optimal, interactive, convenient access of learning resources. It is also helpful for contextual awareness, classroom

CHAPTER - II

REVIEW OF RELATED LITERATURE

2.1 Introduction

A thorough review survey of related literature is the pre requisite on selecting the research topic. Since effective research is based upon past knowledge, review of related literature helps to eliminate the duplication of what has been done and provides useful hypotheses and helpful suggestion for significant investigation. The review of related literature is a significant part of research study. This helps the research worker to gather the data and information about what has been done in the particular area on which the investigator intends to study. Review of related studies further avoids duplication of effort that has already been done and it helps the investigator to go further deep into the problem in hand. It also helps to study the different facets of the problem. It provides the opportunity of giving an insight into the methods, measures and various other parameters adopted by others which would lead to the improvement of the research design significantly. It is a valuable guide in defining the problem, recognizing its significance, suggesting the promising data gathering devices, appropriate study design and source of data. Hence a review of previous studies in the relevant areas of the present study is attempted here.

2.2 Purpose of Review of Related Literature

Review of the related studies, besides allow the researcher to acquaint himself with current knowledge in the field or area in which he is going to conduct his research, serve the following specific purposes.

- It enables the researcher to define the limits of his field.
- The researcher can avoid unfruitful and useless problem areas.
- The researcher can avoid unintentional duplication of well established findings.

2.3 Need for Related Studies

The survey of related studies and literature not only provides access to the accumulated wisdom of the age but also enables the investigator to carry out his or her work systematically and successfully (Best, 1959). Related studies and literature would stimulate the researcher to acquire an organized programme of reading as a source of problems in education to discover new problems and to avoid unnecessary duplication of research work and to aid in properly defining the problems that have been taken up for solutions. It also provides comparative data on the basis of which the significance of one's findings can be evaluated and interpreted. It also adds to the scholarship of the investigator practically all the human knowledge can be found in books and libraries (Best, 1959).

Survey of what has been so far done in the field or related fields enable the researcher to make his work more meaningful, pointed and useful. Hence the researcher surveyed the literature and brief accounts are presented under attitude towards information and communication technology, smart classroom knowledge and teaching style.

- A review of the related literature gives the scholar an understanding of the previous work that has been done.
- A review of related literature would develop the insight of the investigator. The information thus gained will save much time for the researcher
- The importance of the review is quite obvious in delimiting the research problem and in defining is better.
- The review of literature provides us with an opportunity of gaining insight into the methods, measures, subjects and approaches employed by other research workers. This in turn will lead to significant improvement of our research design.
- A careful concentration of the chapters entitled "Recommendations for the further research" in various research studies guides us regarding the stability of a problem and in assisting us delimiting our research problems (Agarwal, 1993).

2.4 Indian Studies

Rupali Srivastava and Anuradha Sharma (2020) conducted a study on "A Study of Attitude of Students Towards Smart Classes Teaching in Social Science at the College Level: A Pilot Study". The objectives were to find out the significant difference in the attitude between male and female college students towards the use of technology in classroom, to study the attitude of Smart classes (experimental group) over the traditional method (control group) of teaching of social Science among male and female college students. Sample taken from Mahila PG Mahavidyala, Jodhpur, Rajasthan, Aishwarya college, Jodhpur, Rajasthan and Symboyzia Girls College Agra for a pilot study. Purposive sampling was done to select the college from which the sample was drawn. Random sampling technique was used to select the sample. Attitude Scale towards the Use of Smart Class constructed by the investigator and Social Science Achievement Test are the tools used in this study. In the light of analysis and interpretation, the investigator arrived at the following conclusions: The Male and Female students differ significantly in their attitude regarding the usage of technology in classroom. The controlled and experimental group differs significantly in their attitude towards the usage of technology in classroom.

Sangeeta Rani (2019) conducted a study on "Teachers' Attitudes Towards Smart Classroom in Relation to Some Demographic Factors". The purpose of the study was to

determine the attitudes of teachers towards smart classroom with respect to gender, teaching experiences, qualification and streams. The study was adopted descriptive survey method. 71 teachers were selected from five English medium school of Yamuna Nagar district affiliated with Central Board of Secondary Education by random sampling technique. Self developed teachers' attitude towards smart classroom scale (TASCS) was used for data collection. T–test was used to analyze the data. The results revealed that there are no significant difference between the mean attitude score of male and female teachers, more and less experienced teachers, different group of teachers in relation to their qualification and different group of teachers in relation to their streams. Therefore, it was concluded that attitude of teachers towards smart classroom does not influence by demographic variable such as gender, teaching experience, qualification, streams.

Kannan (2019) conducted a study on "Attitude towards Smart Classroom of the Teachers Teaching Economics Subject in Higher Secondary Schools". The study aimed at determining the Economics teachers attitudes towards smart -classroom. The study was carried out using the normative survey method. The study group consists of 200 Economics teachers from higher secondary schools. The attitude towards smart-classroom scale constructed and validated by Prabhu, H., et.al, (2014), was used in this present study. Its validity and reliability was found to be

0.90 and 0.81 respectively. The results of the data analyses revealed that the Economics teachers show favourable attitude towards smart classroom in general.

Moumita Dey (2019) conducted a study on "A Comparative Study on Smart Classroom and Traditional Classroom in terms of Academic Achievement of 10^{th} Standard Students". The study based on primary data and presented in quantitative method. The researcher was taken 20 students from Govt. High Secondary school in Santipur, Nadia District, and West Bengal and followed stratified random sampling method. Researchers considered 10 students in each group. Group 'A' was taught in Smart classroom and group' B' through Traditional classroom. Present paper focuses on a comparatives study between achievements of 10th standard students on smart classroom and traditional classroom. It found that comparatively smart classroom more improving achievement of the student than traditional classroom. And also revealed that no difference between boys and girls in their achievement through learning by smart classroom.

Shakera Parveen (2018) conducted a study on "Attitude of Secondary School Teachers Towards the Usage of Technology in Classroom". The study aims to find out significant difference in the attitude of secondary school teachers having experience in the use of technology in classroom. The objectives were to find out significant gender differences in the attitude of secondary school

teachers towards the use of technology in classroom, to find out significant difference in the attitude of urban and rural secondary school teachers towards the use of technology in classroom, to find out significant differences in the attitude of science and humanities Secondary school teachers towards the use of technology in classroom, 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. 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 revealed 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.

Eva Milkova (2018) conducted a study on "Multimedia application for educational purposes: development of algorithmic thinking". The study was based on many years' experience with multimedia applications supporting the area of computer science education and it could serve as an inspirational material directed to all educators developing students' algorithmic thinking. Education of subjects related with computer science is from the perspective of 42 other for centuries taught subjects, still in its infancy. Even nowadays a teaching method aimed at developing algorithmic thinking of students is still the subject of extensive discussions and

teachers are looking for different ways on how to access it to students. Next to the educational approach to this base of computer science it is also important to find a suitable support for students' self-learning. Multimedia applications give teachers an excellent chance to demonstrate and visualize the subject matter more clearly and comprehensibly, as well as also enabling them to prepare study material for students which optimizes their study habits. Along with large software products developed by a team of professionals there are also various smaller programs dealing with objects appropriate to course subject matter created on a script given by the teacher with regard to students' needs. In the paper such application prepared to intensify self-preparation of students in subjects developing algorithmic thinking is introduced and its benefit discussed. Animations useful to be used as an introductory complement to lectures are introduced as well. At the end advantages of the professional virtual learning environment containing such study material are mentioned.

Pramod Kumar and Madhumalathi (2016) have conducted a study on "ICT attitude among teacher educators: with focus on education". The study described the attitude in information and communication technologies (ICT) among teacher educators with focus on education. Information and communication technologies (ICT) have become common place entities in all aspects of life. Within education, ICT has begun to have a

presence but the impact has not been as extensive as in other fields. Education is a very socially oriented activity and quality education has traditionally been associated with strong teachers having high degrees of personal contact with learners. The use of ICT in education lends itself to more student cantered learning settings and often this creates some tensions for some teachers and students. But with the world moving rapidly into digital media and information, the role of ICT in education is becoming more and more important and this importance will continue to grow and develop in the 21st century. This study highlighted the attitude of ICT on contemporary teacher training institutions of education and explores potential future developments. From the study, it was evident that information and communication technologies (ICT) have significant difference among male and female teacher educators.

Philomina and Amutha (2016) have conducted a study on "Information and communication technology attitude among teacher educators". The aim of the study was to appraise the attitude among teacher educators in Tiruchirappalli district in India. The sample of the study consisted of 42 teacher educators. Descriptive analysis was used to analyze the data. The results indicate that Indian teacher educators' attitude towards ICT differs regarding gender and subject. When compared with M.Ed. and M.Phil. scholars, Ph.D. scholars surpassed the M.Ed. and M.Phil. scholars in terms of 87 ICT attitude in

different dimensions. Indeed in India teacher educators' attitude on ICT integration needs to be strengthened.

Debashish Bhowmick (2016) has conducted a study on ICT in Education in India. The 21st century is the age of information and communication technology. A remarkable trend in the field of education during 88 the last few decades all over the globe has been the use of ICT in making education productive giving instruction a more powerful and scientific base, extending the educational opportunities to the masses and creating a new learning environment and information rich society. The investigator in this study highlighted the role of ICT in education and Indian government's initiatives to integrate ICT in education.

Archana Ganesh Watkar (2016) has conducted a study on effectiveness of ICT in teacher education: an experimental study. The present study aimed at finding the effectiveness of ICT in comparison to conventional teaching method. It was an experimental study have has conducted on B.Ed., college students in teaching of educational statistics. The results revealed that use of ICT is more effective for theoretical part in educational statistics that the conventional method of teaching. But it is not more effective for problems in educational statistics.

Baskaran and Mumtaz Begum (2015) conducted a study on "Attitude of high school teachers towards smart classrooms in relationship to their technophobia and

challenges faced by them during instruction through modern technologies". The objectives of the study were to measure the level of attitude of High School teachers towards teaching in Smart Classrooms, to dentify the level of Techno-Phobia among the High School teachers, to study the level of attitude towards using Modern Technology while teaching in Smart Classroom among the High School teachers, to analyze the level of attitude towards teaching in smart classroom towards modern technology and level of techno- phobia among the High School teachers with respect to the demographic variables Gender, Age, Medium of Instruction, Pattern of Education, Stream of Subject, Type of School, Teaching Experience, Locality, Computer Ownership, Type of Computer, Knowledge about Computer and Access to Internet, and to study the inter relationship between techno-phobia, teaching in smart class and usage of modern technology. Normative Survey Method was followed to collect data from the selected teacher to analyze them statistically. 700 High school teachers from the Kallakuruchi Taluk of Villupuram District in Tamil Nadu State alone where chosen for the study. Teacher Attitude Scale towards Smart Classroom. (TASSC) -2014, Constructed and Standardized by the Investigator and the Research Supervisor and Validated by the Experts. Scale on Technophobia of Teachers (SOTOT)-2014, Constructed and Standardized by the Investigator and the Research Supervisor and Validated by the Experts.

Attitude towards usage of Modern Technology in teaching, Constructed and Standardized by S.Rajasekar, Annamalai University, Tamil Nadu. After statistical analysis, the results were drawn and all the results were distressed appropriately the findings are thus listed below 86% of high school teachers have favourable attitude towards Teaching in Smart classes. There is a significant difference among the high school teachers in the level of attitude towards teaching in the Smart Classroom with respect to the demographic variables Gender, Age, Medium of Instruction, Pattern of Education, Type of School, Teaching Experience, Locality, Computer Ownership, Knowledge about Computer, and Access to Internet. There is a significant difference among the high school teachers, in their Technophobia with respect to the demographic variables Gender, Age, Medium of Instruction, Pattern of Education, Type of School, Teaching Experience, Locality, Computer Ownership and Knowledge about Computer There is a significant difference among the high school teachers in the level of attitude towards using Modern Technologies with respect to the demographic variables Gender, Age, Medium of Instruction, Pattern of Education, Type of School, Teaching Experience, Locality, Computer Ownership, Knowledge about Computer, There is positive relationship between teaching in Smart Class room and using Modern Technologies among the high school teachers. There is positive relationship between level of

technophobia and using Modern Technologies for teaching in Smart Class room and among the high school teachers.

Nabin Thakur (2015) has conducted a study on "Attitude of Trained Teachers in Relation to Information and Communication Technology". The objectives of the study were to find out the level of ICT attitude among the trained teachers, to compare the level of ICT attitude among male and female as well as rural and urban trained teachers. The data was collected by self-made questionnaire form in which thirty different secondary schools five from urban and five from rural of each three districts in West Bengal. Ten secondary trained teachers were allowed to administer the questionnaire from each school and the questionnaire was administered personally for each teacher. In that way all total three hundreds trained teachers participated to administer the questionnaire wherein fifty questions were pioneer and each question was carrying one mark. Based upon the scores of questionnaire, five categories were used like 1-10 very poor, 11-20 poor, 21-30 average, 31-40 good and 41-50 very good. To analyse the data Frequencies, Percentage, Mean, Standard Deviation (S.D.) and 't' test were used. Result revealed that there was overall the level of ICT attitude was poor, there was no significant difference in the level of ICT attitude among the male and female trained teachers and there was a significant difference between the urban and rural trained teachers.

Chintal Siva Sankar (2015) has conducted a study on "Prospective Teachers' Perception on ICT in Teacher Education". The objective of the study was to find out attitude and attitude of prospective teachers on ICT. The researcher also formulated null hypothesis with respect to objective. The study was conducted on 98 B.Ed. trainees in the Department of Education, RGU. The study also followed normative survey method using purposive sampling technique. Attitude scale was constructed and developed related to ICT. Data was collected and analyzed quantitatively with statistical treatment. The results were: There was significant difference in attitude and attitude between male prospective teachers and female prospective teachers. Female prospective teacher had less attitude and favourable attitude in using ICT applications than male prospective teachers.

Anurag Chaudhary et.al. (2014) has conducted a review on "Applications of Smart Class and E-Learning". The study was about the much growing technology "SMART CLASS and E-LEARNING". The usage of smart teaching techniques is now more prevalent in school as well as other colleges and institutes. It was generated back in 1980s and is growing since then. This new technology helps the students with the benefit of learning with a different experience. The methods of e-learning make the classroom more interactive and interesting. It has also created a greater impact on our society as well as on education system. The government has also started

implementing this idea of e-learning in the schools. There are several examples available in the market that encourage the idea and work for its betterment. The smart classes have their own merits and demerits but this new technology s welcomed by the society in a great manner.

Durga Prasad Rao and Raksha Singh (2014) have conducted "A Study on Measuring Effectiveness of Information Communication and Technology (ICT) Tools in Teaching School Children: A Case Study from Chattisgarh State, India". The study was conducted to determine the effectiveness of information communication and technology tools viz. DLP (Distance Learning Projector) and computer/laptop in comparison with selected instructional media for teaching primary and secondary schools pupils, it examined the effect of grade on the performance of pupils taught with flour instructional media 100 pupils from 3 schools in Durg, Raipur and Rajnandgoan district respectively from Chhattisgarh state, India, were taught three topics drawn from syllabus. The non–randomized quasi pre test, post test experimental design was used in finding out which of the pupils in the four experimental groups: Computer/Laptop, Chart and Chalk Talk Method performed best. The study revealed that the pupils taught with the computer/Laptop, Chart, and Chalk Talk Method performed equally as well as those taught with Computer/Laptop. The study concludes that ICT tools

were more effective than conventional methodologies in teaching school children learning issues.

Murat (2013) has conducted a study on "The Impact of a Curricular Innovation on Prospective EFL Teachers' Attitudes towards ICT Integration into Language Instruction". This was investigated whether the new EFL teacher training curriculum provides an efficient ICT training or not through both a quantitative and a partially qualitative research methodology. One hundred twenty-four prospective EFL teachers participated in this study and the results of a series of Independent Samples T-tests highlight that the prospective teachers having five ICT-related courses displayed better attitudes in comparison to those not completing this training period by reflecting that the success of technology integration into education varies from curriculum to curriculum, depending on the ways in which it is applied. In this study, parametric analysis such as Independent samples t-test was utilized to explore any statistically significant differences between prospective EFL teachers' ICT attitudes before and after ICT-interwoven training. Moreover, the qualitative information was analyzed from the transcriptions of the interviews, and synthesized with the results from the quantitative study. A questionnaire made up of nine items and an interview consisting of nine questions were employed as data collection tools.

Sharma.et.al (2013) has conducted a study on "Analysis of Attitudes Toward Computer Networks and Internet Addiction in Engineering College of Meerut". The objective of the study was to find out various aspects of Internet use such as, frequency, place, and purpose of use with level of users. This is a cross sectional study has conducted among the 182 students of the engineering college in District Meerut Uttar Pradesh. A pre-tested semi structured questionnaire was used. Data was entered in Microsoft Excel spreadsheet and analyzed with proportional percentage. The most frequently used places for accessing the Internet are the college (35.71%) and at home (25.57%). A majority of the respondents i.e. 42.95% use the Internet mainly for entertainment purposes and comparatively less number of respondents i.e. 34.6% use the Internet for educational purposes. It was found that the Internet has become a vital instrument for entertainment, research and learning process in academic system during the study period among of students.

Prakash Chandra Jena (2013) has conducted a study on "Effect of Smart Classroom Learning Environment on Academic Achievement of Rural High Achievers and Low Achievers in Science". The study was an experimental one and has conducted in Jalandhar district of Punjab. The investigator has taken 60 secondary school students from Royal Convent School by using simple random sampling technique. For conducting experiment the investigator has used two group randomized pre-test

and post-test design. For collection of 47 data the investigator has used an achievement constructed and standardized by the investigator and t-test has also used for analysis and interpretation data. The result of the study reveals that smart class learning environment is better to teach both low achievers and high achievers than traditional class.

Ina Blau (2011) has conducted a study on teachers for "Smart Classrooms: The Extent of Implementation of An Interactive Whiteboard-Based Professional Development Program on Elementary Teachers' Instructional Practices". The study investigated the implementation of an Interactive Whiteboard (IWB) professional development program on instructional practices of elementary teachers. The research assesses to what extent teachers implement IWB-related strategies in their instructional practices after completion of a 30-hour IWB professional development program. A case study design was used. The data was collected immediately after the course using the instrument for assessing IWB lessons through non-participant observations of 43 elementary teachers coming from different subject-matters and schools. The results are discussed in terms of constructivist and cognitive approaches to teaching and learning. Consistent with the constructivist pedagogy, teachers encouraged IBW-student interactions; however, they did not stimulate enough student-student communication. They adapted non-linear learning

techniques across the Internet; however, they continued the linear use of prepared IWB files. The 48 lessons' time was divided between the whole class teaching (50%) and more differentiated individual or small group activities. The teachers functioned more as "guide on the side", scaffolding student learning, rather than transferring knowledge. Regarding the cognitive approach, the participants' abilities to apply the multimedia principles and the level of their digital design skills were very high. IWB programs should pro-mote interactivity among students, emphasize saving IBW files for further review, and using non-linear learning through IBW files.

Anitha and Diet (2011) has conducted an experimental study on “The Impact of Multimedia in Learning Fundamental Tamil at Primary Level”. The study was an experimental study which attempts to find out the impact of multimedia in learning fundamental Tamil at the primary level. The researcher selected a single group pre test post test experimental design and has conducted the study with a sample (35) consisting of boys and girls from standards III, IV and V in the Government Model School, Tirur. They belonged to low socio economic background born to uneducated parents. The researcher used a video programme for learning fundamental Tamil. The Video programme was shown to the students for a period of three days after conducting the pre test, which checked their knowledge in fundamental Tamil letters, 2, 3 and 4 lettered words and simple sentences. The post test was

given after viewing the Video programme. The performances of the students in learning Tamil letters, words and simple sentences before and after viewing the Video programme were compared and the researcher found out the children's performance was better 49 after viewing the Video programme in fundamental Tamil. It was concluded that the use of multimedia makes teaching and learning the language effective.

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

2.5 FOREIGN STUDIES

YiSuping et.al. (2021) has conducted a study on "Similar or Different? A Comparison of Traditional Classroom and Smart Classroom's Teaching Behavior in China". In the "Internet" era, to understand the difference between the traditional classroom and smart classroom, this study uses the current domestic and foreign classroom teaching behavior research methods as a starting point and analyzes the teaching behaviors in classrooms from six dimensions: resource sharing, teacher lecturing, teacher-student interaction, group cooperation, autonomous learning, and evaluation feedback. A data analysis method is used to conduct a complete statistical study on the teaching behaviours of the 40 lessons selected in the first smart classroom innovation teaching competition in Jiangsu Province, and the analysis results show that there are significant differences in teacher-student interaction,

group cooperation, autonomous learning, and evaluation feedback in the smart classroom and the traditional classroom. There is no significant difference in data analysis between resource sharing and teacher teaching, but through further video observation and analysis, the two still show the difference in the actual classroom.

Lu and et.al (2021) conducted a study on "Examining the Key Influencing Factors on College Students' Higher-Order Thinking Skills in the Smart Classroom Environment". To understand the development of students' higher-order thinking skills (HOTS) in the smart classroom environment, a structural equation modeling analysis was used to examine the relationships between key factors that influence students' learning and their HOTS within a smart classroom environment. A sample of 217 first-year Chinese college students, who studied in a smart classroom environment for one semester, completed a survey that measures their smart classroom preferences, learning motivation, learning strategy, peer interaction, and HOTS. The results indicated that peer interaction and learning motivation had a direct impact on students' HOTS. Furthermore, indirect effects were found between students' learning strategy and HOTS through the mediator peer interaction, and between smart classroom preferences and HOTS through the following: learning motivation, the combination of learning strategy and peer interaction, and the combination of learning motivation, learning strategy and peer interaction. Based on these

findings, this study recommends that instructors teaching in a smart learning environment should focus on improving peer interaction and learning motivation, as well as smart classroom preferences and learning strategy, to hone students' HOTS.

Mohammed. et.al. (2018) has conducted a study on "Impact of Students' Use of Technology on their Learning Achievements in Physiology Courses at the University of Dammam". The study was aimed to investigate the possible relationship between students' use of technology and their achievements in physiology courses at five health 52 colleges of the University of Dammam. The study was conducted on 231 students studying physiology during their 2nd year at one of five health colleges (Medicine, Dental, Clinical Pharmacy, Applied Medical Sciences, and Nursing). An online survey was sent to the students regarding their use of technology and the devices they use. The Pearson correlation coefficient and descriptive statistics were implemented to study the frequency of, and relationship between, technology and learning achievement in physiology courses. The study observed a significant relationship between students' use of technology and their achievements in health colleges. The study also demonstrated that the most-used devices are laptops (50%) and phones (42%) followed by tablets (7%) and desktop computers (0.5%). The paper reports on the results of the survey, documenting what was revealed regarding how technology is used among students at the

health colleges, as well as the important benefits on their achievements during physiology courses. Technology usage might produce comparatively more significant increases in academic achievement than would non-usage. Further research is warranted to examine its effects.

Oye Aiahad and Abrahim (2018) have conducted study on "Attitude, Adoption and Acceptance of ICT innovation in higher education institutions". The study examined the attitude, adoption and acceptance of ICT innovation in higher education institution and the study was conducted at the university of Jos Plateau state, Nigeria as a pilot study. One hundred questionnaires were administered and collected, containing 23 UTAUT survey questions and 9 demographic statements totalling 32 questions. In addition, 57% were male and 43% were female. The author had achieved Objective which was, "to determine the level of attitude of ICT by the respondents". By using the pilot study questionnaire part of the demographic statements, we are able to answer 95 the questions. Question which talks about barriers to use of ICT, have the majority of the respondents (42%) which said that their problem is time; on the other hand (31%) said that the problem is training. Others respondents (4%) said that cost are their problem, another group (20%) said that they need compensation and the final group (3%) said that, it does not fit their programme. The constructs was significantly correlated with BI at the 0.05 level (2tailed). This implies that the university ICT make task more easily

accomplished, thereby making them more productive. Hence result from the survey shows that 86.5% agree. Hence this determines the level of expected adoption of ICT by the respondents. Among the four UTAUT constructs, performance expectancy exerted the strongest effect. Therefore Performance expectancy is the most influential factor for the acceptance and use of ICT by the respondents. Recommendations made were that, all employed teachers in Federal, State and Private universities should undertake mandatory training and retraining on ICT programmes.

Bian Wu et.al. (2017) has conducted a study on "Professional Development of New Higher Education Teachers with Information and Communication Technology in Shanghai: A Kirkpatrick's Evaluation Approach". The study examined their ICT professional development through the lens of Kirkpatrick's evaluation model. Data were collected from online 96 surveys both immediately after an ICT module and 6 months later. The results showed that participants intended to integrate ICT in teaching and had an above-average level of Technological Pedagogical and Content Knowledge (TPACK). Participants and their department heads also confirmed distinctive teaching performance of these new teachers and better learning behavior of their students. The study revealed that demographic variables of new HE teachers may also affect their perception of ICT and TPACK. This study suggested that ICT professional

development can have positive impacts on new HE teachers' perception of ICT, their TPACK competence, and ICT-related teaching practice and student learning.

Nitza Davidovitch and Roman Yavich (2017) have conducted a study on "Effect of smart boards on the cognition and motivation of students". In recent years the research literature has explored technological developments in varied areas that measure change. The study focuses on the smart board, and its purpose is to examine its effect on the school system. The study was conducted via a questionnaire completed by 130 respondents in the fifth and sixth grades of two elementary schools in Jerusalem Efrata and Tali Gilo. Smart boards were introduced in these two schools in recent years and hypothesized that smart boards improve teaching, based on the teaching measures developed by Nira Hativa of Tel Aviv University: order and organization, level of clarity, interest, and general level of satisfaction. The study's significant finding is that the greatest improvement since the introduction of smart boards is in the variable of clarity, and a significant difference was found in the favor of sixth grade students. Additionally, a significant difference was found in the variable of interest, in favor of the girls. All four variables appear to be interrelated, and each contributes to the student's success and to improving the student's learning process. The research findings illuminate the contribution of technology to teaching, through a case study of smart boards, in the dimension of

clarity, found by the study to be a significant criterion of good teaching. Examination of the various technological tools in light of their contribution to the research-proven dimensions of outstanding teaching might enhance the pedagogical contribution of technological developments to teaching.

Aydin Aslan and Chang Zhu (2016) have conducted a studied on "Influencing Factors and Integration of ICT into Teaching Practices of Pre-Service and Starting Teachers". The study aims to investigate both the pre-service and starting teachers' perceptions for ICT-related variables perceived ICT competence, perceived competence in ICT integration, attitudes towards ICT, anxiety around ICT usage, external barriers to ICT integration, ICT-related courses, pedagogical knowledge, and prior experience concerning the use of ICT with regard to their integration of ICT into teaching practice to explore to what extent they integrate ICT into education. Quantitative data were collected from 200 pre-service teachers from the subject areas of Turkish language, social sciences, elementary mathematics and science in their fourth year of training programmes and 105 starting teachers who have been teaching not more than for three years in the mentioned subjects. T-test and multiple 97 regression analysis were used to analyse the data. It was found out that perceived competence in ICT integration, computer anxiety, perceived ICT competence and pedagogical knowledge variables significantly predicted

the teachers' integration of ICT into teaching practices. The results showed that their integration of ICT was limited to basic level and demonstrative purposes and they underused simulated tasks for experience, discovery and experiment. Implications and suggestions were put forward for the teacher training and professional development trainings to enable teachers to use ICT more competently and confidently in education.

Bakkabulindi.et.al. (2016) conducted a study on "Application of the Unified Theory of Acceptance and Use of Technology to the Use of ICT by Undergraduates in the School of Education, Makerere University". The survey sought to establish how performance expectancy (PE), effort expectancy (EE), social influence (SI) and facilitating conditions (FC) related to the use of ICT by undergraduate students in the School of Education at Makerere University. Descriptive analysis was done using percentages and means, while hypotheses were tested using Multiple Regression. The results suggested that EE and FC were significant positive correlates of the use of ICT, while PE and SI were not. These findings imply that to enhance the use of ICT by the undergraduates in the School, the ICT change agents have to enhance and maintain the EE or perceived user friendliness of ICT by acquiring ICTs that are user friendly ICT. They also have to raise and maintain FC that is the levels of perceived compatibility of ICT among the students by soliciting

their views on what hardware and software should be acquired.

Irfan.et.al. (2016) conducted a study on "The Effects of Multimedia with Different Modes of Presentation on Recitation Skills Among Students with Different Self-Regulated Learning Level". The study attempts to investigate the impact of multimedia on student' 55 recitation skills using three presentation modes (MSM – a separate mode with the text placed separately from the video on recitation by a qari, MIM – an integration mode in which text / words are combined in the video using subtitling concept, or MVRM - voice recognition mode whereby students can record their recitation). The quasi-experimental study involves the multimedia mode as the independent variable, the students' recitation as the dependent variable, and their self-regulated learning (SRL) level as the moderator variable. A total of 140 secondary school students were randomly selected for the study. Three courses were have been developed, with each courseware applies a multimedia mode. During the learning process, the students worked in pair. The findings show a significant difference in recitation between the three groups and the post hoc analysis indicates that MVRM scored significantly better compared to MIM and MSM. In addition, students with high SRL scored higher as compared to those with low SRL level in all treatment groups. MVRM allows students to record and play back their recitation recording to their learning partner to be

immediately assessed and corrected. MIM also helps their recitation skills when subtitles were used in the video and the words that changed colours when read, in which the students were able to identify the phonics of the letters and sounds of the combined letters. Also, the self-paced and self-assessment learning material helps the students with high SRL level, although pairing activity assists those with low SRL level.

Taleba and Hassanzadeh (2015) conducted "A Study on toward Smart School: A Comparison between Smart School and Traditional Schools for Mathematics Learning". The aim of the study was to compare smart training method and traditional training method in learning-retention processes of Mathematics. Among 9724 grade 3 students in Yazd, 60 students were selected from a traditional school by using cluster random sampling method. They randomized into two equal classes. After getting a pre-exam, the multiplying section of grade 3 Mathematics was presented in six sessions every week by using the researcher-made multimedia software in "smart class" and traditionally in other class. The "learning score" was assessed at the end of every session, while the "retention score" was assessed two weeks after each session. Independent-samples T test was used to compare learning and retention scores between two groups and paired-samples T test to compare retention and learning scores in each group. The mean learning score is significantly higher in the smart training group.

Abidoye (2015) has conducted a study on "Effect of Multimedia-Based Instructional Package on Secondary School Students' Academic Achievement in Geography in Oyo State, Nigeria". The study examined the effect of multimedia base instructional package on secondary school students' academic achievement in Geography in Oyo State Nigeria. The study employed pre-testpost-test control group quasi experimental research design. The sample population comprises of 85 SS2 Geography students drawn from four public secondary schools in Ogbomoso South Local Government Area of Oyo State. Two intact classes were selected through simple random sampling technique from each of the selected schools and were later sub-divided into experimental and control groups. The study was guided by three null hypotheses. The two instruments used in the study were: geography students' achievement Test (GSAT) and Multimedia Instructional Package (MIP). Data were also analyzed with the use of mean, standard deviation ad t-test statistical tools. Findings of the study revealed that students taught with multimedia instructional package with the post achievement mean score (x=81.79) performed better than their counterparts taught with conventional method with post mean achievement scores. The findings also revealed that gender has no significant effect on the academic achievement of students. The male students had post achievement scores (x=82.46) while the counterpart who are female had postachievement mean

score (x=81.95). Finally, it was recommended that geography teachers should be exposed to seminars, workshops and trainings; they should be encourage to use ICT tools in teaching while students should be given access to computer usage with necessary facilities. Emesini Nnenna Orieoma (2015) has conducted a study on Pattern of Acquisition of ICT-Based Skills by Student-Teachers: Implications for Teacher Education in Nigeria in This Era of Digitalization. The study examined the pattern of acquisition of ICT-based skills by student-teachers and its implications for teacher education in Nigeria in this era of digitalization. The study was a survey research type with two research questions guiding it. The population for the study was 1,570, made up of 3rd and 4th year Faculty of Education students of 2010/2011 academic session of Ebonyi State University, Abakaliki-Nigeria. A sample of 300 students was drawn using proportionate random sampling technique. A 9-item questionnaire was used for data collection that was duly validated, and it yielded a reliability coefficient of 0.72 using Cronbach Alpha Method. Two-hundred and thirty three (233) copies of the questionnaire were properly filled and returned and the data collected was analyzed using frequency count and percentages. The findings of the study revealed that many students have acquired basic ICT skills like: data processing using computer; to type and edits works; improvement on ICT literate level and peer tutoring others among others, and that student-

teachers' acquisition of ICT skills is directly related to their course of study. The 100 implications of the findings for teacher education were drawn and recommendations made in line with these findings.

Abdul and Tengku (2015) have conducted a study on "Information and Communication Technology among Excellent Islamic Education Teachers in Selangor Malaysia". The study drew to this issue by investigating the knowledge, skills, and the use of ICT and attitudes of Excellent Islamic Education teachers towards ICT. The participants were 70 Excellent Islamic Education teachers in Selangor, Malaysia. Data is collected using a questionnaire and the findings are analyzed by using SPSS software 19.0. The results of the descriptive analysis involving the mean and standard deviation indicate that the knowledge and teachers' attitudes towards ICT to be at the high level. While the skills and the use of ICT among the teachers at a moderate level. The result also revealed that there was a significant relationship between ICT knowledge and teachers' attitude towards ICT. However, the strength of the relationship is very weak. There was also a significant relationship between ICT skills and teachers' attitude towards ICT and the strength of the relationship is also weak. Finding also showed there was a significant relationship between the use of ICT and teachers' attitude and the strength of the relationship is at moderate level. In conclusion, the use of ICT in teaching and learning of Excellent Islamic Education teachers is

very important to determine the objectives achieved. Excellent teachers should consider that ICT only act as a complement, additional tools or aids to teachers 101 who play the key role in delivering information using teaching methods that are more dynamic and efficient; rather than take the place or role of the teacher.

Johnson and Pamela Martin (2015) have conducted a study on "Change in classroom practices of technology by K-12 teachers". The purpose of the longitudinal study was to investigate the sustained change of technology use in the classroom by K-12 teachers following a one-year professional program. The study investigated specific factors which influence change in technology use in the classroom. The factors investigated in this study include years of teaching experience, hours of professional development in technology, presence of on-site hardware and technical assistance, ratio of computers for students in the classroom, number of internet accessible computers for students and perceived technology support by principal. Additionally, this study aligned the Teaching with Technology Instrument Revised with Welliver's (1989) Instructional Transformation Model. The aligned Teaching with Technology Instrument Revised has 23 questions covering technology skills determined by the North Carolina Technology Competencies for Educators. Each of the questions is placed on a 5-point Likert scale ranging from never to daily use. Welliver's instructional Transformation Model is a technology use model ranging

from familiarization which is when a teacher is first introduced to technology to evolution, which is where a teacher is creating classroom specific applications for software. The study found a significant change in teacher's use of technology in the classroom during the four years covered by this study. The variable years of teaching experience was 102 significant on the total model score as well as on the five stages of the model. Four additional variables were significant at one stage of survey responses were analyzed using the constant method in order to identify emergent categorise in student response about teaching and learning. Demographic and Likert responses were summarized using descriptive statistics. Interviews were transcribed and presented as cases.

Phillips and Walter Nathaniel (2014) conducted a study on "School administrators and technology education teachers are aware of the standards for technological literacy: research on teachers and school administrators' attitude of and attitudes towards the Standards was non-existent in the state of Minnesota. A forty item Likert scale survey was developed and used to find out teachers and administrators attitude, views and attitudes towards the standards. A sample of 280 technology education teachers and 280 administrators of technology education programs were identified. The results showed that less than half of the state's technology education teachers and less than one quarter of the states administrators were aware of the standards before they were contacted by the researcher.

Both groups had a positive attitude towards the standards. Teachers believed that a higher percentage of the standards were embedded in their curriculum while administrators believe that there was a lower percentage. The results also showed that younger teachers of technology education and younger administrators were more aware of the standards. It was conducted that the technology education stakeholders in the state of Minnesota must find ways to convey the message to teachers and administrators that the standards for technological literacy exist are available and are important in the process of graduating technologically literate students and mainstreaming technology education.

Yi-Hsuan Lee.et.al, (2014) has conducted a study on "The effects of various multimedia instructional materials on students' learning responses and outcomes: A comparative experimental study". The study examined whether an eLearning curriculum involving various multimedia instructional materials (MIMs) can stimulate learners' socialness perceptions, and whether the difference in style has a specific effect on the students' emotional states (arousal, pleasure, and flow experience) that consequently affect the students' learning motivations and learning outcomes. We apply an experimental design to three groups of students and compared three types of presentation methods: (a) a PowerPoint presentation (b) a PowerPoint presentation guided by a human-like animated character; (c) a PowerPoint presentation guided

by a monster-like animated character. The analysis results showed that various types of MIMs result in various social cues that have a significant effect on the students' socialness perceptions, arousal, pleasure, flow experience, learning motivation, and learning outcome. We contribute to the field of e-learning by integrating MIM, social response theory, flow theory, and learning theory into an innovative model, which sheds light on the perspective that the three groups of various MIMs stimulate an emotional state of students and maximize their learning outcomes. Therefore, when designing the e-learning curricula with animated characters, we recommended that teachers consider how these designs affect students' emotional responses to ensure the best learning outcomes.

Naser Jamil Al-Zaidyeen.et.al. (2013) has conducted a study on "Teacher's attitudes and levels of technology use in classrooms: the case of Jordan schools". The study investigated the level of ICT use for educational purposes by teachers in Jordanian rural secondary schools. The paper contributed to the body of knowledge regarding the level of ICT use and also, concerning the importance of teachers' attitudes towards the use of ICT for educational purposes. The data for the study were collected through the use of quantitative data. In October 2008, a questionnaire was distributed to 650 teachers in Jordan, randomly selected. Four hundred sixty teachers responded to the questionnaire. The survey included questions concerning the level of ICT use as well as questions

related to the attitudes of teachers towards the use of ICT. The findings of the study, which were obtained by analyzing the data collected from the teachers revealed that, teachers had a low level of ICT use for educational purpose, teachers hold positive attitudes towards the use of ICT, and a significant positive correlation between teachers' level of ICT use and their attitudes towards ICT was found. The findings suggested that ICTs 104 use for educational purposes should be given greater consideration than it currently receives. In general, the results were consistent with those previously reported in studies related to the use of ICT in the educational settings.

Isleem and Mohammed (2012) have conducted a study on "Relationships of selected factors and the level of computer use for instructional purposes by technology education teachers in Ohio public schools". The study determined the level of computer use for instructional purposes by technology education teachers in Ohio public schools. The study also investigated the relationships between the level of use and selected factors expertise, access, attitude, support and teacher characteristics. The study derived its theoretical framework from Rogers (1995) model of diffusion of innovations. A study correlation research design was used. A questionnaire was developed and mailed to all technology education teachers (N=1170) in Ohio public schools in the 2002-2003 school year. Validity and reliability were established for the

survey instrument. The return rate of the survey was 66%. Descriptive and inferential statistical techniques were used. The findings of the study indicated that technology education teachers have high levels of computer use in mainstream computer uses such as word processing, e-mail and internet and classroom management. Strong correlation existed between the levels of computer use and teachers perceived access to computers. Multiple regression analysis indicated a positive predictive value toward computer use with the demographic characteristics of instructional experience and modular instructional method and negative predictive value with age and urban geographic location. The independent 105 variables that explain the greatest amount of variation and the level of computer use were in order of predictive value teachers perceived expertise, attitude and access. Technology education teachers have high levels of computer use in main stream applications and low levels of computer use in specializes applications. These levels of use are slightly lower than the state levels. Those findings from this study resulted in a framework of knowledge to inform efforts to enhance technology use in schools. They further suggested additional research is needed to explore various factors such as learning styles, attitudes, professional development and confidence levels which influence technology use. It was critical that education leader's issues identified by the research to realize technology are potential to influence teaching and learning.

Sara Aloraini (2012) conducted a study on "The impact of using multimedia on students' academic achievement in the College of Education at King Saud University". The purpose of the study was to find out the impact of using multimedia on students' academic achievement in the College of Education at King Saud University. The study's effort was to answer the following questions: What is the impact of using multimedia on students' academic achievement in the "computer and its use in education" curriculum? Are there any statistically-significant differences between the average marks of the experimental group and that of the control group in the pre and post measurements of students' academic achievement in the school of Education? To this end, an experiment of two equivalent groups was designed, one of the groups is experimental and the other is control; each of them consists of 20 female students. The lecture was given to the first group using a computer presentation program which uses multimedia treated as an experimental group, while the second group was given the same lecture using the traditional method which uses the dialog and discussion technique treated as a control group. Both groups were subjected to pre and post tests in the subject tackled by the lecture. The analysis result of the pre test showed no statistically-significant differences, which in turn proves the equivalence of the two groups. Meanwhile, the analysis result of the post test showed the following: There are statistically-significant differences

between the experimental group and the control group at a significance level of 0.05 for the interest of the experimental group. Both groups were subjected to pre and post tests in the subject tackled 60 by the lecture. The analysis result of the pre test showed no statistically significant differences, which in turn proves the equivalence of the two groups. Meanwhile, the analysis result of the post test showed the following: There are statistically-significant differences between the experimental group and the control group at a significance level of 0.05 for the interest of the experimental group.

Fernandez-Cardenas. et.al., (2010) conducted a study of "Disciplinary Knowledge and Gesturing in Communicative Events: A Comparative Study between Lessons Using Interactive Whiteboards and Traditional Whiteboards in Mexican Schools". In the study the authors have looked at the use of interactive whiteboards (IWBs) in Mexico from a linguistic anthropological perspective. Twenty lessons were video recorded to compare the use of IWBs and traditional boards in different areas of the curriculum in primary schools. Data were analyzed as a set of sequenced communicative events in which participants construct knowledge together in a multimodal environment. The authors found, firstly, that teachers ask students through the use of language and gestures to show in sequence their understanding of the use of multimodal objects according to the goals set for the lesson and the knowledge privileged by an academic

discipline. Secondly, pedagogic ideologies are an important aspect of students' socialization into disciplinary knowledge that is embodied in communicative practices. Implications from the research include recognizing the communicative competence of participants for achieving joint collective goals, as well as suggesting the design of new 61 participation frameworks with pertinent and creative problem-solving activities for promoting knowledge construction through talk in interaction.

Twiner. et.al., (2010) conducted a study of "Multimodality, Orchestration and Participation in the Context of Classroom Use of the Interactive Whiteboard: A Discussion". The study offered a discussion of the literature concerning multimodality, orchestration and participation related to classroom use of the interactive whiteboard (IWB). Specifically, it will explore the place, or potential use, of the IWB to resource a multimodal approach to teaching and learning, emphasizing the complex connections that need acknowledging when viewing the IWB in context. Comments on the IWB's effectiveness or otherwise, however, are beyond the scope of this paper. Conceptions of the role of language in mediating other modes and media, in terms of its centrality or complimentarily, will necessarily be addressed by considering activities such as classroom talk aligned to other resources. The role of various actors (including teachers and learners) in designing,

orchestrating and interpreting multimodal material will be considered. Whilst recognizing the substantial debate regarding multimodality as an analytic lens, the discussion will focus on multimodality in terms of materials used in the classroom. Lee and Mal (2010) have conducted a study on Interactive Whiteboards and Schooling: The Context. This study seeks to set the scene for the ensuing articles in this themed issue by placing the recent developments with interactive whiteboards (IWBs) in their historical context. It argues that 62 use of this instructional technology has already had a profound impact upon teaching and highlights the importance of educational researchers considering both the micro and the macro context when they explore the impact of any instructional technology use. The paper moreover suggests that the IWB is emerging as the second great revolutionary instructional technology and is shaping as the development that is fundamentally changing the nature of schooling, moving it from its traditional paper-based form to digitally based organisation. The author's provocative stance stems from a perspective of directing and networking schools. Many of the subsequent papers elaborate examples of IWB use in classrooms, helping the reader to evaluate the argument using recent empirical research.

Alexander Waid (2010) conducted a study of "Smart Classrooms and Hybrid Courses. Many new technologies have expanded the capabilities of what educators may

accomplish in the classroom". The study points out how some of these technologies have been incorporated into the Spanish Curriculum at the US Coast Guard Academy. Specifically addressed are issues of how these technologies may be used while maintaining sound pedagogical practice, an issue which remains unclear to many, and which is continually changing with each new technological advance. The paper discusses: how the internet is being used in and out of the classroom, to what extent students are using it, what student reactions to it have been, how it enhances the student learning process and some ways in which these methods may be used in other disciplines.

Warwick. et.al., (2010) conducted a study on "In the Mind and in the Technology: The Vicarious Presence of the Teacher in Pupil's Learning of Science in Collaborative Group Activity at the Interactive Whiteboard". The focus of research into the use of the interactive whiteboard (IWB) in the classroom has been largely in relation to teacher-pupil interaction, with very little consideration of its possible use as a tool for pupils' collaborative Endeavour. This paper is based upon an ESRC-funded project, which considers how pupils use the interactive whiteboard when working together on science-related activities. It provides an analysis of video and other data from science lessons in UK Years 4 and 5 primary classrooms (pupils aged 8-10 years). Concentrating on a series of lessons constructed by three

(out of 12) of the project teachers, together with their written and spoken commentaries, it takes each set of lessons as a case for study and comparison. This paper focuses in particular on the nature of the "vicarious presence" of the teacher evident in the group interactions at the board. Firstly, the vicarious presence of the teacher seems to be in the minds of pupils, enabling them to appropriate and use introduced rules and procedures, in this case in relation to group talk. Secondly, it is in the ways in which the constructed task environment on the IWB guides and mediates the 64 pupils' actions, enabling them to connect with, interpret and act upon the teacher intentions for the task. Here, the teacher's vicarious presence is in the technology. We conclude that the IWB "can" provide both a tool and an environment that can encourage the creation of a shared dialogic space within which co-constructed knowledge building can take place. However, this only occurs where there is active support from the teacher for collaborative, dialogic activity in the classroom and where the teacher is able to devise tasks that use board affordances to promote active learning and pupil agency.

Harlow. et.al., (2010) conducted a study on “Keeping in Touch with Learning: The Use of an Interactive Whiteboard in the Junior School”. Recent literature on the role of the interactive whiteboard (IWB) has indicated numerous ways in which teachers make use of the IWB to support children's learning. In these studies there is a

growing attitude of changing roles in the classroom as teachers gain confidence in the use of new technologies. This study describes how a researcher worked with a teacher in a small rural school in New Zealand to document and understands the use of an IWB to enhance the learning of young children ages five to six years. The focus of the research was on how the features of the IWB supported teaching actions and provided potential and structure for the children to develop their "key competencies", broadly conceptualised as the development of knowledge, skills and aptitudes for learning. Here the authors demonstrate that it was the teacher's orchestration of the classroom environment, incorporating the use of 65 the IWB that was the key to the development of pupil autonomy as they learnt to take risks and to be creative in their learning with the interactive whiteboard.

Derek and David (2009) conducted a study on "Optimising the Use of Interactive Whiteboards: An Application of Developmental Work Research (DWR) in the United Kingdom". There are concerns that the effective use of interactive whiteboard technology is being inhibited by its use only as a means of presentation. This study looks at the way in which a working group drawn from the university and school areas of mathematics teaching developed materials to enhance the pedagogic use of interactive whiteboard technology. The multi-disciplinary, structured and outcome-oriented work was

used to support what was considered by the participants to be effective professional development for all participants. Analysis of the approach according to culture, partnership, reflection and conceptual challenge offers evidence that cross-sector experiential learning is mutually beneficial because it enhances both process and outcome.

Lin and Angela (2009) conducted a study on "An assessment of the international student's attitudes towards technology based learning: English as a Second Language (ESL) implication". The purpose of the study was to assess international student's attitudes towards technology based learning and the impact of English as a Second Language (ESL) has on such learning. The study was to investigate whether using ESL related to international students attitudes towards the use of technology for learning; to determine whether using ESL determine was related to international students perceived levels of improvement toward technology integration; and to examine whether using ESL was related to international students preferred strategies for technology training. In addition this study was to assess whether age, gender, race nationality, computer use, frequency of the computer use, 106 program level or academic major were related to international students attitudes towards use of technology for learning. The population of the study was 560 international students enrolled for courses at Mississippi State University in fall 2003. Proportionate random sampling was used to select 126 international students

who participated in the study. The researcher developed the questionnaire used in collecting the data for the study. Data were analyzed using percentage, mean scores, standard deviation. Pearson's correlation coefficient, Spearman's correlation co-efficient, Analysis of Variance (ANOVA), Multivariate Analysis of Variance (MANOVA) and discriminate analyses. These statistical analyses were used to determine if relationship and differences existed among the variables that were investigated. The results of the study showed that international student's attitudes towards ESL were positively related to their attitudes towards computers. Students experience in ESL was positively related to students perceived computer competency improvement. Student's attitudes towards ESL did not have impacts on their preferred learning strategies for computer training. Student's prior experiences in ESL were not related to their proffered strategy for computer training.

2.6 CRITICAL REVIEW

The investigators have given here 46 of related reviews. Of these 25 are foreign studies and 22 are conducted in India. All of the reviews are about smart board, multimedia, technology, smart classroom in different attitudes and of different kinds of peoples. In most of the studies, questionnaire, survey and personal interview are employed in collecting data and the data are analyzed by means of "t" test, ANOVA and chi-square test. Most of

the studies are based on difference in variables, sex, years of experience, Here the present study differs from above studies in terms of area, population and sample. It is clear from the review of related literature that it seems none has conducted the study on attitude towards technology integration in curricular transaction. Therefore, the investigators have chosen the topic" Attitude of School Teachers in Radhapuram Assembly Constituency Towards Technology Integration in Curricular Transaction".

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CHAPTER III METHODOLOGY

3.1 Introduction

The methodology part of the research explains the research process. The methodologyof any research study is drawn in a careful examination of the available literature anddepends to a large extent on the imagination and long term vision and understanding of the researcher. It includes a lucid presentation of and what procedures have been adopted to arrive at the main findings, what methods have been used to gather the data, what data gathering instruments have been employed and this is explained in this chapter.

3.1.1 Educational Research

According to Robert. M.W.Traverse (1980), "Educational research is that activity which is directed towards the development of a science of behaviour in educational situations. The ultimate aim of such science is to provide knowledge that will permit the educator to achieve his goals by the most effective methods". Educational research to some extent is complex and demanding. However the broad spectrum of activities single options to complex combinations of procedures both qualitative and quantitative.

3.2 Methods of Educational Research

There are three types of methods

i. Historical method
ii. Descriptive method
iii. Experimental research method

[

Historical Method

Historical method involves investigating, recording, analyzing and interpreting the events of the past for the purpose of discovering generalizations that are helpful in understanding the past and to a limited extent in anticipating the future (John W. Best, 1999).

Descriptive Method

This method describes and interprets what exists at present in the form of conditions, practices, processes, trends, effects, attitudes and beliefs. It is concerned with the phenomena that are in typical or normal conditions. "The survey is an extensive and cross-sectional dealing with a relatively large number of cases at a particular time in yielding statistics that are abstract from particular cases" John. W. Best (1995).

Types of descriptive method

- ❖ Survey studies
- ❖ Inter relationship studies
- ❖ Development studies

Experimental Method

It describes 'What will be' when certain variables are carefully controlled or manipulated. The focus is on variable

relationships. As defined, here deliberate manipulations of variables under controlled conditions are always a part of the experimental method / research (Nagarajan et al., 2003).

3.2.1 Importance of Survey Method

- Survey method is important to the research scholars, for the following reasons.
- Factual information regarding existing status enables members of the profession to make efficient plans about future courses of action.
- It provides comprehension of underlying issues in the area of study.
- It focuses attention upon the needs that otherwise could remain unnoticed.
- It provides extensive information about the nature of educational phenomena.
- It gathers data from relatively large number of cases at a particular time.
- It is concerned with generalized statistics of the whole population and with the characteristics of individuals.

3.3 Steps in Survey method

As the problem selected for the present study is concerned with one of the current problems, the investigator decided to employ the survey method for the collection of data.

According to William Wiersma, (1985) detailed steps in a survey are as follows:

3.3.1 Planning

The plan to action has to be drawn up to ensure scientific and objective merits of the study. Definition of the problem, operational definitions of variables, review and development of the survey design all such items of plan should be clearly drawn out.

3.3.2 Development and Application of Sampling Plan

The geographical area to be covered, the sample to be selected and detailed sampling procedure should be defined and formulated.

3.3.3 Construction of Interview Schedule or Questionnaire

The tools of investigation generally used are interview schedule or questionnaire and the like. A specified investigation should require specified tools of inquiry. If no readymade tool is available, a suitable one will be prepared in a systematic manner. The tools should be tested in a pilot sample before it is administered to the vast sample.

3.3.4 Data Collection

The data will be collected from the proposed group of persons or sources with the help of the tool to be employed in the study. The participation of teachers, administrators and interested public men is imperative to ensure comprehensiveness and authenticity of the data.

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3.3.5 Translation Data

Depending upon the extensiveness of the survey data and upon the nature of the material collected, the handling of data usually takes initial tabulation, construction of category systems as necessary and technical preparation for analysis.

3.3.6 Analysis

Analysis of data comprises various approaches designed to dissect the phenomena in their constitutional parts with a view to obtain greater insight into specified aspects. The statistical analysis of data is principally based on counts of numbers of units that fall into different classes and subclasses, where quantitative responses have been obtained total for the classes are secured. From these numbers and totals, the arithmetic means can be computed for the different classes. Basic summary table can then be complied. More critical analysis can be applied to the data.

3.3.7 Conclusion and Reporting

After collecting and analyzing the data, the researchers have to accomplish the tasks of drawing inferences following by reporting. It is only through interpretation that the research can expose relations and processes that come under his findings. Research report is considered a major component of the research study for the research task remaining incomplete till the report has been presented.

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3.4 Method Selected for the Present Study

The method selected for the present study is the survey method. The survey method is used to gather data from a relatively large number of cases at a particular time. It is concerned with generalized statistics that result when data are collected from a large number of individual cases.

Survey deals with describing, recording, analyzing and interpreting conditions that exist. In surveys, the variables that exist are selected and observed. Surveys are concerned with hypothesis formulation and testing the analysis of the relationship between variables. They may be either census or sample surveys. The method of data collection through surveys may be through observation or interview or questionnaire or some projective techniques.

3.4.1 Population for the Study

The population for the present study consists of the primary, middle and high school teachers working at Radhapuram Assembly Constituency in Tirunelveli District.

Sample

The investigators have used the simple random sampling technique to collect the sample. The sample for the present study constitutes 311 primary, middle and high school teachers from Radhapuram Assembly Constituency. The following demographic variables were selected for the present investigation.

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Gender	Male / Female
Location of the School	Rural/ Semi-Urban
Nature of the School	Boys/ Girls / Coeducation
Location of Residence	Rural/ Semi-Urban
Type of Management	Govt./ Aided
Educational Qualification	D.T.Ed / U.G with B.Ed / P.G with B.Ed
Years of Experience	0-10 years / 10-20 Years / Above 20 years

Table 3.1. Schools Wise Distribution

S.No	School Name	Sample
1.	HINDU Primary School, Nathiparai	2
2.	Panchayat Union Primary School, Valliyoor	5
3.	St.Joseph RC Primary School, Panagudi	5
4.	Alagu Primary School, Sivagamipuram	3
5.	Panchayat Union Primary School, Annanagar	2
6.	St.Marys Primary School, Kootapuli	5

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7.	Panchayat Union Primary School, Marankulam	2
8.	Panchayat Union Primary School, Adankarkulam	2
9.	TDTA Primary School, Chettikulam	3
10.	Panchayat Union Primary School, Therku karungulam	3
11.	Panchayat Union Primary School, Puthumanai, Chettikulam	8
12.	Panchayat Union Primary School,Singarathopu	2
13.	Panchayat Union Primary School, Silathikulam	5
14.	Panchayat Union Primary School,Radhapuram	8
15.	T.D.T.A Primary School, Kumpilapadu	2
16.	Panchayat Union Primary School,Papangulam	2
17.	Panchayat Union Primary School, Kasthurirangapuram	4
18.	RC Primary School, Prakasapuram	2
19.	Panchayat Union Primary School, Thotavillai	2
20.	Panchayat Union Primary School, Parkaneri	2
21.	MVS Primary School, Erumakulam	3

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22.	Panchayat Union Primary School,Kuttam	2
23.	T.D.T.A Primary School,Thisayanvillai	2
24.	Nadar Hindu Primary School, Thopuvillai East	2
25.	Sri Ramakrishna Primary School, Thisayanvillai	3
26.	St.Annammal RC Primary School, Koodankulam	9
27.	Hussey Middle School, Panagudi	7
28.	Holy Cross Middle School, Valliyoor	5
29.	T.D.T.A Middle School, Kalanthapanai	5
30.	Nehru Middle school, Vadakankulam	2
31.	St.Aloysius Middle School,Kallikulam	5
32.	St.Aloysius Middle School, Soundrapandiyapuram	4
33.	T.D.T.A Middle School, Radhapuram	11
34.	PSS Middle School,Mudavankulam	5
35.	Panchayat Union Middle School, Sankarapuram	5
36.	Panchayat Union Middle School,Kunjanvillai	4
37.	T.D.T.A Middle School,Idayankudi	3

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38.	RC Periyanayagi Middle school, Radhapuram	4
39.	R.K.R.Middle School, Parameswarapuram	9
40.	TDTA Middle school,Perpilangulam	5
41.	Theresa RC Middle School, Puspavanam	5
42.	Panchayat Union Middle School Vijayapathi	7
43.	North Hindu Middle School,Panagudi	14
44.	Nirmala RC Middle School, Therku Vallioor	9
45.	St.Xaviers Middle School, Avudayarpuram	8
46.	Salvation Army High School, Valliyoor	9
47.	Government High School, Rosemiyapuram	7
48.	Government High School,Kavalkinnaru	7
49.	Government High School, Madhaganeri	8
50.	T.D.T.A High School,Yokapuram	3
51.	Governement High school,Koliankulam	8
52.	Government High School, Therku karungulam	9

53.	Government High School, Silathikulam	12
54.	Government High School, Kasthurirangapuram	8
55.	Government High School, Athukurichi	7
56.	Government High School, Shanmugapuram	7
57.	Sri Ramakrishna High School, Thisayanvillai	14
58.	St.Kitheri High school, Koothenkuzhi	5
	TOTAL	**311**

Table 3.2. Distribution of the Sample

Variables	Category	Sample	Percentage
Gender	Male	73	23
	Female	238	77
Location of the School	Rural	284	91
	Semi-Urban	27	9
Type of Management	Government	146	47
	Government Aided	165	53
Type of School	Boys	10	3
	Girls	18	6
	Coeducation	283	91
Educational Qualification	D.T.Ed	48	15
	U.G with B.Ed	159	51

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	P.G with B.Ed	104	34
Years of Experience	0-10 years	63	20
	10-20 years	181	58
	Above 20 years	67	22
TOTAL		**311**	**100**

Figure3.1. Distribution of the Sample

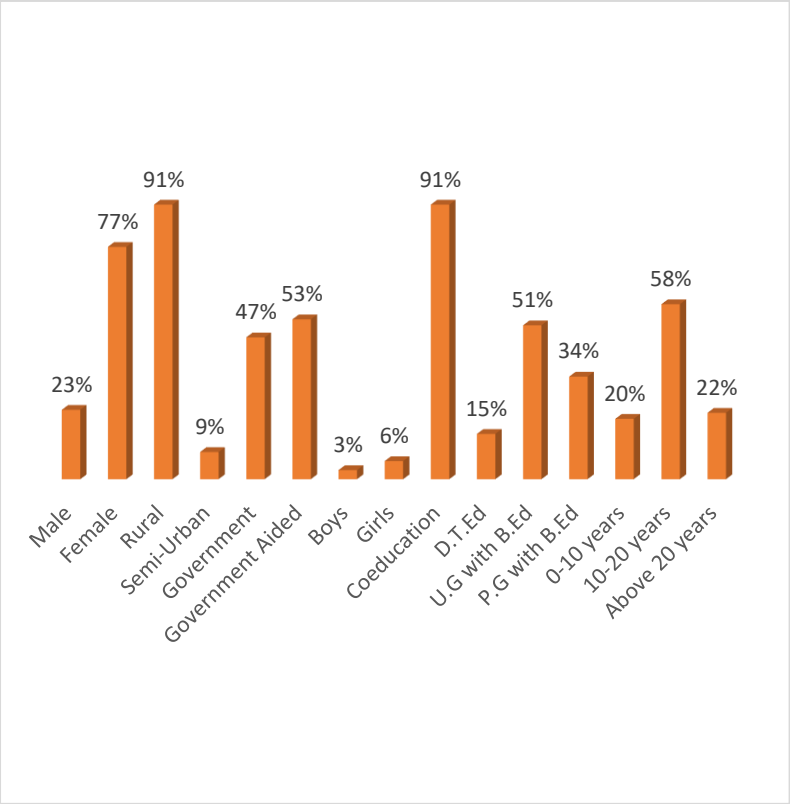

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TABLE 3.3

DISTRIBUTION OF THE SAMPLE IN TERMS OF GENDER

Variables		No. of Teachers	Percentage
Gender	Male	73	23
	Female	238	77
Total		**311**	**100**

The above table shows that 23% are male teachers and 77% are female teachers in the sample.

FIGURE- 3.2 Distribution of the Sample in Terms of Gender

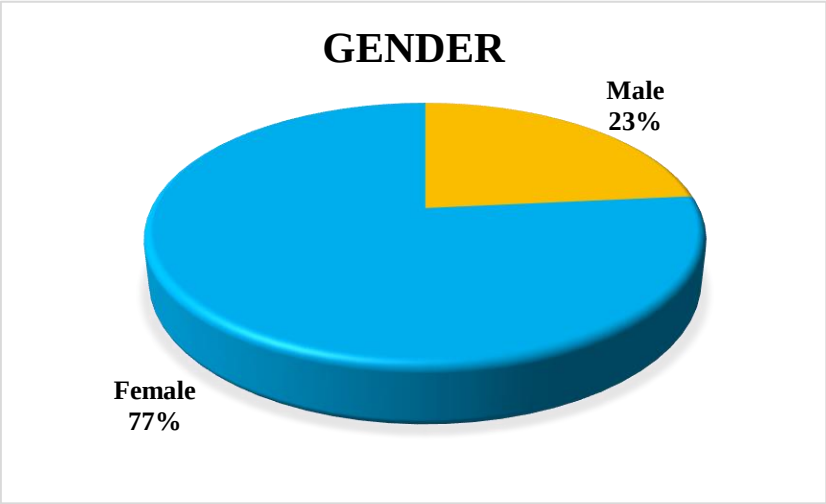

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TABLE 3.4

DISTRIBUTION OF THE SAMPLE IN TERMS OF LOCATION OF SCHOOL

Variables		No. of Teachers	Percentage
Location of the School	Rural	284	91
	Semi-Urban	27	9
Total		**311**	**100**

The above table shows that out of 311 teachers, 91% of teachers are working in Rural area schools, 9% of teachers are working in Urban area schools.

FIGURE- 3.3 Distribution of the Sample in Terms of Location of School

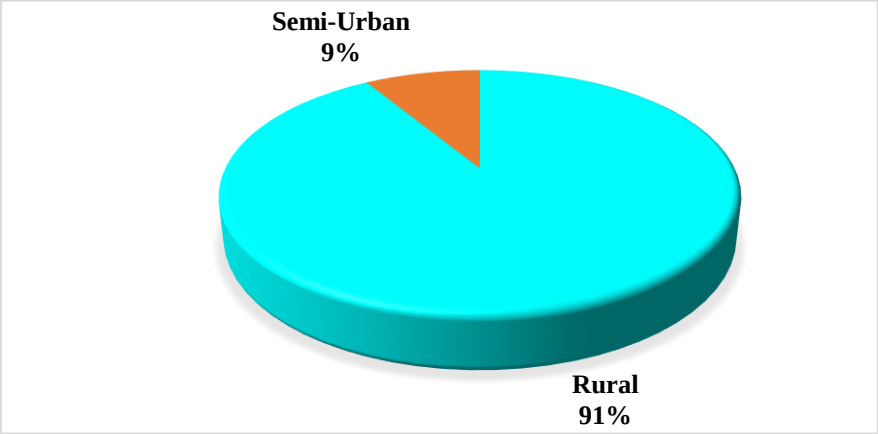

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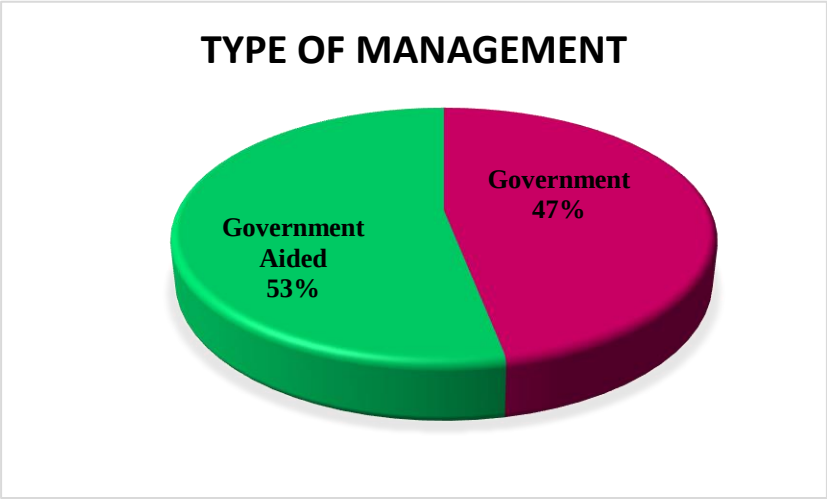
TABLE 3.5
DISTRIBUTION OF THE SAMPLE IN TERMS OF TYPE OF MANAGEMENT

Variables		No. of Teachers	Percentage
Type of Management	Government	146	47
	Government Aided	165	53
Total		**311**	**100**

The above table shows that out of 311 teachers, 47% of teachers are working in Govt. schools, and 53% of teachers are working in Govt. Aided schools.

FIGURE- 3.4. Distribution of the Sample in Terms of Type of Management

TABLE 3.6



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DISTRIBUTION OF THE SAMPLE IN TERMS OF TYPE OF SCHOOL

Variables		No. of Teachers	Percentage
Type of School	Boys	10	3
	Girls	18	6
	Coeducation	283	91
Total		**311**	**100**

The above table shows that out of 311 teachers, 3% of teachers are working in Boys schools, 6% of teachers are working in Girls schools, and 91% of teachers are working in Co-Education schools.

FIGURE- 3.5. Distribution of the Sample in Terms of Type of School

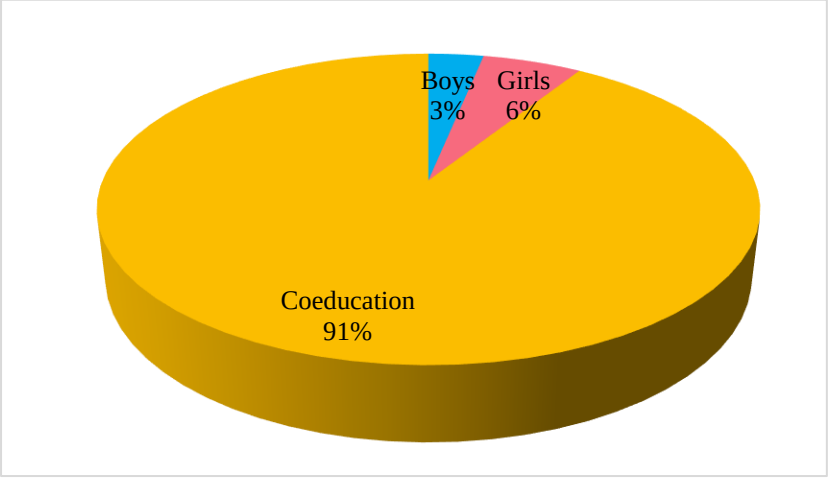

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TABLE 3.7

DISTRIBUTION OF THE SAMPLE IN TERMS OF EDUCATIONAL QUALIFICATION

Variables		No. of Teachers	Percent age
Educational Qualification	D.T.Ed	48	15
	U.G with B.Ed	159	51
	P.G with B.Ed	104	34
Total		**311**	**100**

The above table shows that out of 311 teachers, 15% of teachers completed D.T.Ed course, 34% of teachers completed U.G with B.Ed, and 51% of teachers completed P.G with B.Ed.

FIGURE- 3.6. Distribution of the Sample in Terms of Educational Qualification

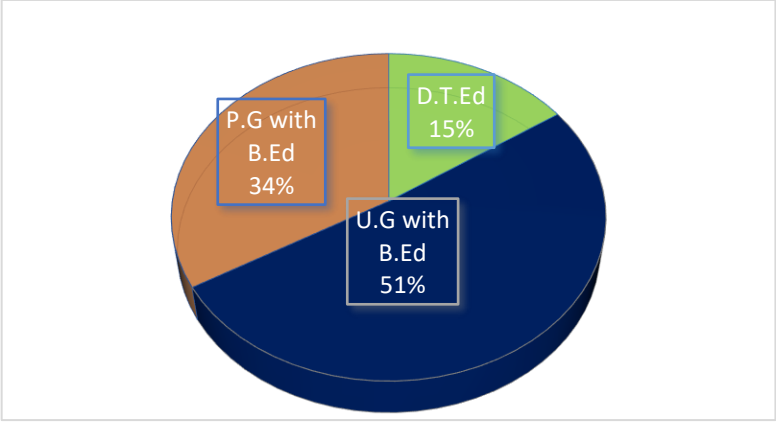

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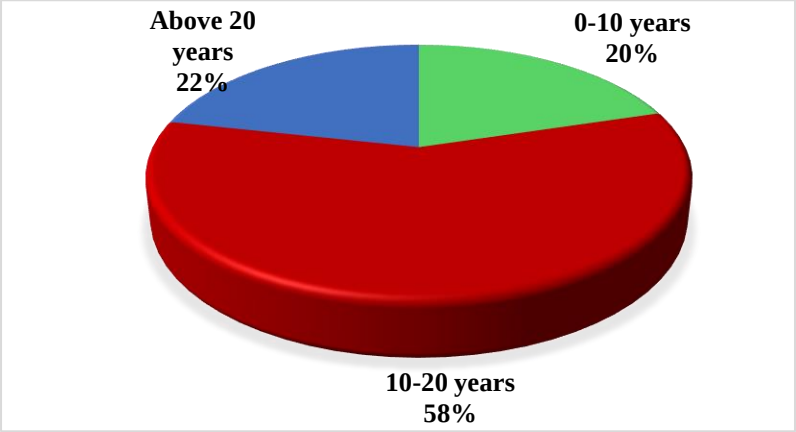
TABLE 3.8

DISTRIBUTION OF THE SAMPLE IN TERMS OF YEARS OF EXPERIENCE

Variables		No. of Teachers	Percentage
Years of Experience	0-10 years	63	20
	10-20 years	181	58
	Above 20 years	67	22
Total		**311**	**100**

The above table shows that out of 311 teachers, 20% of teachers have 0-10 years of experience, 22% of teachers have 10-20 years of experience, and 58% of teachers have above 10 years of experience.

FIGURE- 3.7. Distribution of the Sample in Terms of Years of Experience



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3.5 TOOLS USED IN THE PRESENT STUDY

A great variety of research tools are widely employed for collecting relevant data. The selection of suitable tool is a necessary condition for any successful research. Research depending on the nature of the study selects the relevant tools, either readymade or new ones.

Tools used for the present study are:

a. Personal data sheet

b. Teachers Attitude Scale on Technology Integration in Curricular Transaction

3.6 DESCRIPTION OF THE TOOL

i) Personal data sheet

The purpose of the personal data sheet is to collect data regarding variables such as gender, class handling, location of the school, type of school, type of management, Educational qualification, and years of Experience.

ii) Teachers Attitude Scale on Technology Integration in Curricular Transaction

Attitude towards Technology Integration in Curricular Transaction tool is prepared by the investigators. It consists of 25 items. Each item has to be answered by choosing any one of the alternatives.

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3.7 Pilot Study

Pilot study is a preliminary study conducted on a limited scale before original studies are carried out in order to gain some primary information on the basis of which the main project would be planned and formulated. A pilot study was conducted to the primary, middle and high school teachers. The questionnaires were distributed to twenty-five teachers to find out the validity of the items concluded in the questionnaire. The same questionnaire was distributed to the same set of teachers after two weeks interval.

3.8 Validity for the Study

Content Validity

To establish content validity, the tool was given to the experts to get their valuable comments. They suggested certain modifications. According to their suggestions certain items were deleted and some were modified. Thus the content validity was established.

Item validity

Carl Pearson product moment correlation co-efficient between the item score and the total score was calculated. Thus items having low validity were deleted and the revised tool was compiled.

Attitude towards Technology Integration in Curricular Transaction Inventory

Item No.	γ value	Item No.	γ value
1.	0.324	15.*	0.127
2.	0.298	16.	0.385
3.	0.316	17.	0.298
4.	0.431	18.	0.294
5.	0.386	19.	0.318
6.	0.342	20.	0.416
7.	0.331	21.	0.405
8.*	0.099	22.	0.349
9.	0.301	23.	0.326
10.	0.286	24.	0.346
11.	0.413	25.*	0.076
12.	0.276	26.	0.286
13.	0.249	27.	0.336
14.	0.347	28	0.364

3.9.Reliability

The reliability of the tool was calculated by Karl Pearson Product Moment Correlation Coefficient between the pretest and posttest scores. It was found to be

Teachers Attitude Scale on Technology Integration in Curricular Transaction - 0.764

3.10 Administration of the Tool

With prior permission of head of the institutions, the investigator visited the schools in Radhapuram Assembly Constituency in Tirunelveli District. The personal data form and the questionnaire were administered to 311 primary, middle and high school teachers. They have given clear instructions to answer the items in the questionnaires. Doubts raised by teachers regarding certain items were cleared. Then the questionnaires were collected from the respondents of the schools. The investigators have valued the tools with the help of the scoring key.

3.11 Statistical Techniques Used

Statistical techniques are necessary for understanding of the general tends and measures like mean and standard deviation are calculated for each variable. ‘t’ test is calculated to find out the significant difference between two means. ANOVA is calculated to find out the significant difference between more than two means the

variables, which are more than two. In the present investigation the following statistical techniques are used

Percentage Analysis

Mean and standard deviation was calculated for studying the perceived nature of learning environment and level of achievement.

Level

High level → The score above mean +1 standard deviation

Average level → The score between mean ±1 standard deviation

Low level → The score below mean-1 standard deviation.

Arithmetic Mean ($\overline{X}$)

The mean of a distribution of scores is the value on the scores scale corresponding to the sum of the scores divided by their number or size of sample.

The investigator has used the following formula for calculating arithmetic mean.

$$\overline{X} = \frac{\Sigma X}{N}$$

where,

$\overline{X}$	=	Mean
Σ	=	Sum of scores
X	=	Scores in a distribution
N	=	Number of scores

Standard Deviation (σ)

The standard deviation, the square root of the variance, is most frequently used as a measure of spread or dispersion of scores in a distribution.

The investigator has used the following formula for calculating standard deviation.

$$S.D\ (\sigma) = \frac{1}{N}\sqrt{N(\Sigma x^2) - (\Sigma x)^2}$$

where,

S.D = Standard deviation of the score

Σx = Sum of the score

Σx^2 = Score squared

N = Number of the scores

't' - Test

Sir William Gosset contributed a lot to the theory of small samples. Gosset published his discovery in 1905 under a pin name 'student' and it is popularly known 't' test. 't' test is used to study the significant level of classroom climate and academic achievement in terms of different variables.

$$t = \frac{M_1 - M_2}{\sqrt{\frac{S_1^2}{N_1} + \frac{S_2^2}{N_2}}}$$

where, M_1 = Mean of the first sample

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M_2 = Mean of the second sample

S_1 = Standard deviation of the first sample

S_2 = Standard deviation of the second sample.

N_1 = Size of the first sample

N_2 = Size of the second sample

ANOVA Test

Analysis of variance is used to test the significance of the differences between the means of a number of different population.

$$F = \frac{\text{Mean square variance between groups}}{\text{Mean square variance within groups}}$$

Chi-Square Test

Chi-square is employed to find the association between the samples cases involved.

The chi-square is calculated using the formula

$$\chi^2 = \sum \frac{(O-E)^2}{E}$$

χ^2 = Chi-square

O = Observed frequency

E = Expected frequency

Σ = Sum of

Karl Pearson's Product Moment Correlation

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Karl Pearson's product moment correlation is used to determine relationship between two variables.

$$\gamma = \frac{N\Sigma xy - (\Sigma x)(\Sigma y)}{\sqrt{N\Sigma x^2 - (\Sigma x)^2}\sqrt{N\Sigma y^2 - (\Sigma y)^2}}$$

where,

N = Total number of paired scores

$\sum x$ = Sum of the x scores

$\sum y$ = Sum of the y scores

$\sum x^2$ = Sum of squared x scores

$\sum y^2$ = Sum of the squared y scores

$\sum xy$ = Sum of the product of paired x and y scores

γ = Pearson's product moment correlation coefficient

CHAPTER - IV

ANALYSIS AND INTERPRETATION OF DATA

"An absolute can only be given in an intuition, While all the rest has to do with analysis"' - ***Henri Bergson***

4.1 Introduction

The analysis and interpretation of data represent the application of deductive and inductive logic to the research process. The data are often classified by division into, subgroups and are then analyzed and synthesized in such a way that hypothesis may be verified or rejected. Analysis of data includes comparison of the outcomes of the various treatments upon the several groups and the making of a decision as to the achievement of the goal of research. Data relevant to each hypothesis must be assembled in quantitative from and tested to determine whether or not there is a significant difference in the results obtained from the controlled groups. Analysis of data means to make the raw data meaningful or, to draw some results from the data after the proper treatment. The 'null hypotheses' are tested with the help of analysis data so to obtain some significant results.

Analysis of data means studying the tabulated material in order to determine inherent facts or meanings. It involves breaking down existing complex factor into simpler parts and putting the parts together in new arrangements for the purpose of Interpretation. A plan of analysis can and

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should be prepared in advance before the actual collection of material. A preliminary analysis on the skeleton plan should as the investigation proceeds, develop into a complete final analysis enlarged and reworked as and when necessary. This process requires and alert, flexible and open mind. Caution is necessary at every step.

Analysis of data means studying the tabulated material in order to determine the inherent facts or meanings. It is a process which involves breaking down existing complex factors into simpler parts and putting the parts together in new arrangements for the purpose of interpretation of the result. Statistical techniques are necessary for the purpose of interpretation of the results in an organized and meaningful form. In the general process of analysis of research data, statistical methods have contributed a great deal. Simple statistical calculation finds a place in almost any research study dealing with large or even small groups of individuals, while complex statistical computations form the basis of many types of research. It may not be out of place, therefore, to enumerate some statistical methods of analysis used in educational research.

4.2.Attitude Towards Technology Integration in Curricular Transaction

a) Objective Testing

1. To find out the level of attitude of primary school teachers in Radhapuram Assembly Constituency towards Technology Integration in Curricular Transaction.

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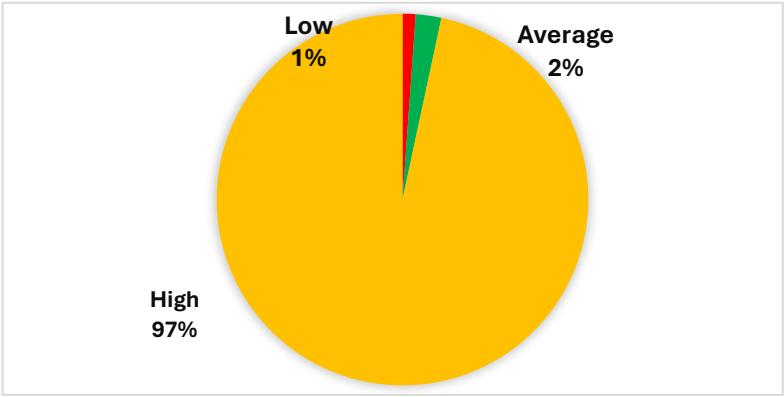
TABLE 4.1

Level of Attitude of Primary School Teachers in Radhapuram Assembly Constituency towards Technology Integration in Curricular Transaction

Variable	Low		Average		High	
	N	%	N	%	N	%
Level of Attitude of Primary School Teachers	24	26.32	45	51.34	21	22.34

It is inferred from the above table that 26.32% of primary school teachers have low, 51.34% of them have average and 22.62% of them have high level of attitude towards Technology Integration in Curricular Transaction. **Figure-4.1**. *Shows the level of attitude of primary school teachers in Radhapuram Assembly Constituency towards technology integration in curricular transaction*



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2. To find out the level of attitude of middle school teachers in Radhapuram Assembly Constituency towards Technology Integration in Curricular Transaction.

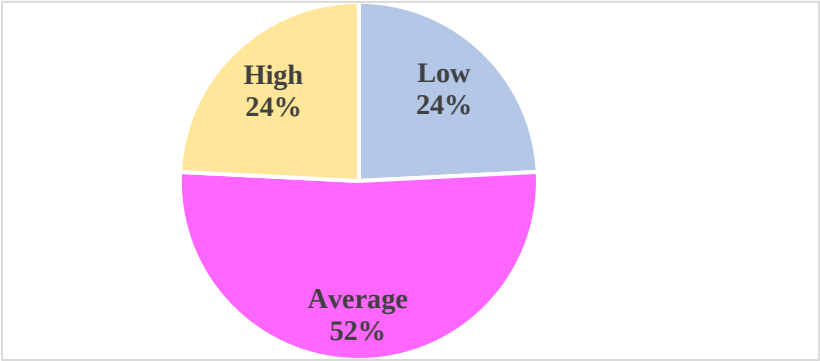
TABLE 4.2

Level of Attitude of Middle School Teachers in Radhapuram Assembly Constituency towards Technology Integration in Curricular Transaction

Variable	Low		Average		High	
	N	%	N	%	N	%
Level of Attitude of Middle School Teachers	31	24.2	57	51.6	29	24.2

It is inferred from the above table that 24.2% of middle school teachers have low, 51.6% of them have average and 24.2% of them have high level of attitude towards Technology Integration in Curricular Transaction.

Figure-4.2. *Shows the level of attitude of primary school teachers in Radhapuram Assembly Constituency towards technology integration in curricular transaction*



3. To find out the level of attitude of high school teachers in Radhapuram Assembly Constituency towards Technology Integration in Curricular Transaction.

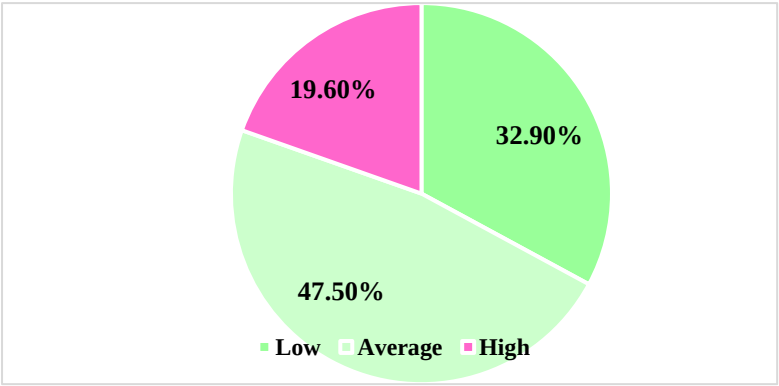
TABLE 4.3

Level of Attitude of High School Teachers in Radhapuram Assembly Constituency towards Technology Integration in Curricular Transaction

Variable	Low		Average		High	
	N	%	N	%	N	%
Level of Attitude of Middle School Teachers	33	32.9	44	47.5	27	19.6

It is inferred from the above table that 32.9% of high school teachers have low, 47.5% of them have average and 19.6% of them have high level of attitude towards Technology Integration in Curricular Transaction.

Figure-4.3. *Level of attitude of high school teachers in Radhapuram Assembly Constituency towards technology integration in curricular transaction*



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4.To find out the level of attitude of primary school teachers in Radhapuram Assembly Constituency towards Technology Integration in Curricular Transaction with respect to background variables.

TABLE 4.4

Level of Attitude Towards Technology Integration in Curricular Transaction of Primary School Teachers with Respect to Background Variables

S. No	Variables	Category	Low		Average		High	
			Count	%	Count	%	Count	%
1	Gender	Male	9	42.9	5	32.9	6	24.1
		Female	14	28.5	34	40.2	22	31.3
2	Location of the School	Rural	24	30.6	24	30.6	32	38.8
		Semi-urban	2	33.5	1	29.6	3	36.9
3	Type of Management	Government	19	28.8	26	34.1	24	37.1
		Govt. Aided	6	27.9	15	39.7	10	32.4
4	Type of School	Boys	10	32.7	12	37.4	8	29.9
		Girls	21	38.5	13	34.1	7	27.4
		Co-Education	7	35.8	9	40.3	3	23.9
5	Educational Qualification	D.T. Ed	9	27.9	16	37.4	14	34.7
		U.G with B.Ed.	10	28.9	14	37.0	12	34.1
		P.G with B.Ed.	4	28.4	5	35.8	6	35.8
6	Years of Experience	0-10 years	12	33.3	16	42.2	7	24.5
		10-20 years	8	25.9	14	42.2	12	31.9
		Above 20 years	4	17.9	11	55.2	6	26.9

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It is inferred from the above table, with regard to **gender**, 42.9 %, 32.9 %, 24.1 % of male primary school teachers have low, average, high level of attitude. 28.5%, 40.2 %, 31.3 % of female primary school teachers have low, average, high level of attitude towards Technology Integration in Curricular Transaction.

With regard to **location of school**, 30.6 %, 30.6 %, 38.8 % of rural primary school teachers have low, average, high level of attitude. 33.5 %, 29.6 %, 36.9 % of semi-urban primary school teachers have low, average, high level of attitude towards Technology Integration in Curricular Transaction.

.With regard to **type of management**, 28.8%, 34.1%,37.1% of Government primary school teachers have low, average, high level of attitude. 279 %, 39.7 %, 32.4 % of Government. Aided primary school teachers have low, average, high level of attitude towards Technology Integration in Curricular Transaction.

With regard to **type of school**, 32.7 %, 37.4 %, 29.9 % of boy's primary school teachers have low, average, high level of attitude. 38.5 %, 34.1 %, 27.4 % of girl's primary school teachers have low, average, high level of attitude. 35.8 %, 40.3 %, 23.9 % of co-education primary school teachers have low, average, high level of attitude towards Technology Integration in Curricular Transaction.

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With regard to **educational qualification**, 27.9%, 37.4%, 34.7 % of primary school teachers completed their D.T.Ed have low, average, high level of attitude. 28.9%, 37.0%, 34.1% of primary school teachers completed their U.G. with B.Ed have low, average, high level of attitude.28.4%, 35.8%, 35.8% of primary school teachers completed their P.G. with B.Ed have low, average, high level of attitude towards Technology Integration in Curricular Transaction.

With regard to **years of experience**, 33.3%, 42.2%, 24.5 % of primary school teachers with 0-10 years of experience have low, average, high level of attitude. 25.9%, 42.2%, 31.9% of primary school teachers with 10-20 years of experience have low, average, high level of attitude.17.9%, 55.2%, 26.9% of primary school teachers with above 20 years of experience have low, average, high level of attitude towards Technology Integration in Curricular Transaction.

5.To find out the level of attitude of middle school teachers in Radhapuram Assembly Constituency towards Technology Integration in Curricular Transaction with respect to background variables.

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Figure.4.4.Level of Attitude Towards Technology Integration in Curricular Transaction of Primary School Teachers with Respect to Background Variables

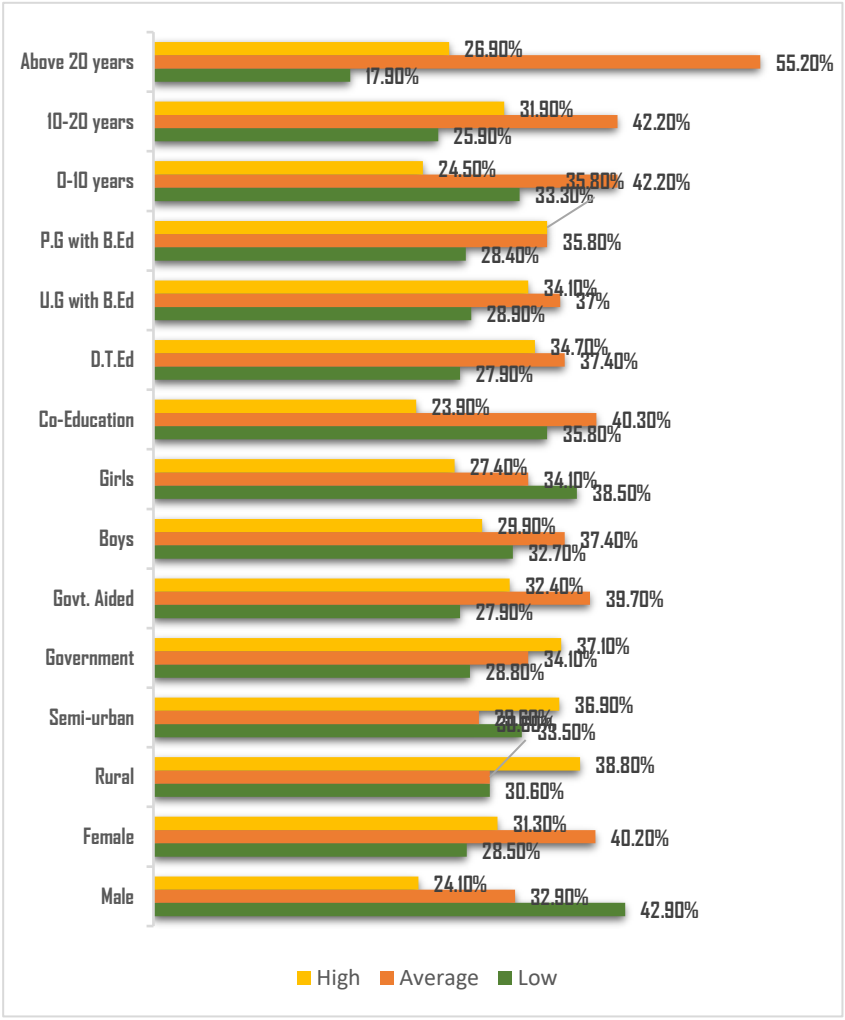

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TABLE 4.5
Level of Attitude Towards Technology Integration in Curricular Transaction of Middle School Teachers with Respect to Background Variables

S. No	Variables	Category	Low		Average		High	
			Count	%	Count	%	Count	%
1	Gender	Male	9	33.5	10	35.8	5	30.7
		Female	35	37.6	35	37.6	23	24.9
2	Location of the School	Rural	39	37.5	29	31.8	20	30.7
		Semi-urban	8	26.6	9	28.3	12	45.1
3	Type of Management	Government	11	33.5	12	34.7	10	31.8
		Govt. Aided	22	23.1	32	39.3	30	37.6
4	Type of School	Boys	8	10.0	14	45.0	13	45.0
		Girls	16	25.3	18	46.3	11	28.4
		Co-Education	12	33.3	16	41.5	9	25.2
5	Educational Qualification	D.T.Ed	11	62.5	7	12.5	9	25.0
		U.G with B.Ed	20	42.6	16	19.8	19	37.7
		P.G with B.Ed	11	41.5	14	18.4	10	40.1
6	Years of Experience	0-10 years	20	50.0	16	35.0	7	15.0
		10-20 years	14	31.5	11	22.2	18	46.3
		Above 20 years	14	37.4	11	19.7	16	42.9

It is inferred from the above table, with regard to **gender**, 33.5%, 35.8%, 30.7 % of male middle school teachers have low, average, high level of attitude. 37.6%, 37.6%, 24.9 % of female middle school teachers have low, average, high level of attitude towards Technology Integration in Curricular Transaction.

With regard to **location of school**, 37.5%, 31.8%, 30.7 % of rural middle school teachers have low, average, high level of attitude. 26.6%, 28.3%, 45.1% of semi-urban middle school teachers have low, average, high level of attitude towards Technology Integration in Curricular Transaction.

.With regard to **type of management**, 33.5%, 34.7%, 31.8% of Government middle school teachers have low, average, high level of attitude. 23.1%, 39.3%, 37.6% of Government. Aided middle school teachers have low, average, high level of attitude towards Technology Integration in Curricular Transaction.

With regard to **type of school**, 10.0%, 45.0%, 45.0 % of boy's middle school teachers have low, average, high level of attitude. 25.3%, 46.3%, 28.4% of girl's middle school teachers have low, average, high level of attitude. 33.3%, 41.5%, 25.2 % of co-education middle school teachers have low, average, high level of attitude towards Technology Integration in Curricular Transaction.

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With regard to **educational qualification**, 62.5%, 12.5%, 25.0% of middle school teachers completed their D.T.Ed have low, average, high level of attitude. 42.6%, 19.8%, 37.7% of middle school teachers completed their U.G. with B.Ed have low, average, high level of attitude.41.5%, 18.4%, 40.1% of middle school teachers completed their P.G. with B.Ed have low, average, high level of attitude towards Technology Integration in Curricular Transaction.

With regard to **years of experience**, 50.0%, 35.0%, 15.0% of middle school teachers with 0-10 years of experience have low, average, high level of attitude. 31.5%, 22.2%, 463% of middle school teachers with 10-20 years of experience have low, average, high level of attitude.37.4%, 19.7%, 42.9% of middle school teachers with above 20 years of experience have low, average, high level of attitude towards Technology Integration in Curricular Transaction.

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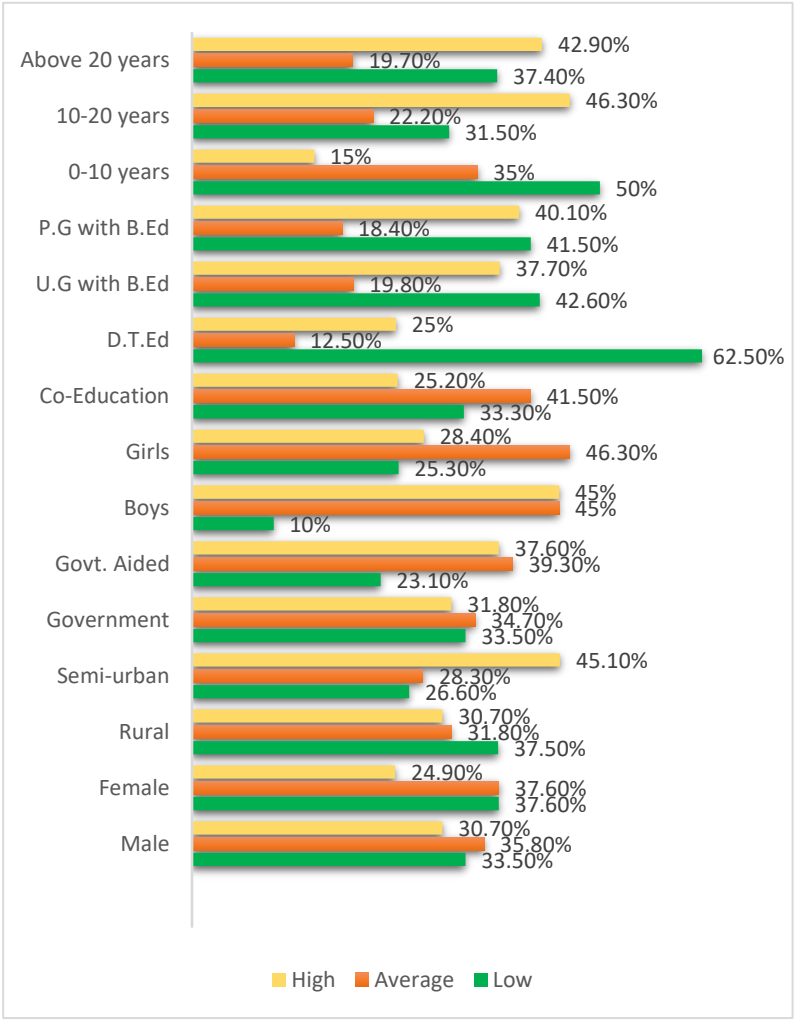
Figure 4.5 .Level of Attitude Towards Technology Integration in Curricular Transaction of middle School Teachers with Respect to Background Variables



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4. To find out the level of attitude of high school teachers in Radhapuram Assembly Constituency towards Technology Integration in Curricular Transaction with respect to background variables.

TABLE 4.6 Level of Attitude Towards Technology Integration in Curricular Transaction of High School Teachers with Respect to Background Variables

S. No	Variables	Category	Low		Average		High	
			Count	%	Count	%	Count	%
1	Gender	Male	6	21.0	3	14.2	20	64.8
		Female	25	39.9	12	16.2	38	43.9
2	Location of the School	Rural	46	47.2	17	15.3	32	37.5
		Semi-urban	4	41.6	2	21.4	3	37.0
3	Type of Management	Government	22	38.1	11	25.0	21	36.9
		Govt. Aided	19	34.1	11	20.2	20	45.7
4	Type of School	Boys	9	25.0	14	35.0	15	40.0
		Girls	12	38.9	13	38.9	8	22.2
		Co-Education	13	38.9	11	34.7	9	30.6
5	Educational Qualification	D.T.Ed	6	45.0	4	30.0	2	25.0
		U.G with B.Ed	14	21.0	20	40.1	19	38.9
		P.G with B.Ed	15	32.0	14	35.4	10	32.7
6	Years of Experience	0-10 years	24	52.5	17	32.5	8	15.0
		10-20 years	10	24.7	14	45.1	12	30.2
		Above 20 years	6	23.8	9	47.6	4	28.6

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It is inferred from the above table, with regard to **gender** 21.0 %, 14.2 %, 64.8 % of male high school teachers have low, average, high level of attitude. 39.9%, 16.2 %, 43.9 % of female high school teachers have low, average, high level of attitude towards Technology Integration in Curricular Transaction.

With regard to **location of school**, 47.7%, 15.3%, 37.5 % of rural high school teachers have low, average, high level of attitude. 41.6%, 21.4%, 37.0% of semi-urban high school teachers have low, average, high level of attitude towards Technology Integration in Curricular Transaction.

With regard to **type of management**, 38.1%, 25.0%, 36.9%of Government high school teachers have low, average, high level of attitude. 38.1%, 25.0%, 36.9% of Government. Aided high school teachers have low, average, high level of attitude towards Technology Integration in Curricular Transaction.

With regard to **type of school**, 25.0%, 35.0%, 40.0 % of boy's high school teachers have low, average, high level of attitude. 38.9 %, 38.9 %, 22.2% of girl's high school teachers have low, average, high level of attitude. 38.9%, 34.7%, 30.6 % of co-education high school teachers have low, average, high level of attitude towards Technology Integration in Curricular Transaction.

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With regard to **educational qualification**, 45.0%, 30.0%, 25.0% of high school teachers completed their D.T.Ed have low, average, high level of attitude. 21.0%, 40.1%, 38.9% of high school teachers completed their U.G. with B.Ed have low, average, high level of attitude.32.0%, 35.4%, 32.7% of high school teachers completed their P.G. with B.Ed have low, average, high level of attitude towards Technology Integration in Curricular Transaction.

With regard to **years of experience**, 52.5%, 32.5%, 15.0% of high school teachers with 0-10 years of experience have low, average, high level of attitude. 24.7%, 45.1%, 30.2% of high school teachers with 10-20 years of experience have low, average, high level of attitude.23.8%, 476%, 28.6% of high school teachers with above 20 years of experience have low, average, high level of attitude towards Technology Integration in Curricular Transaction

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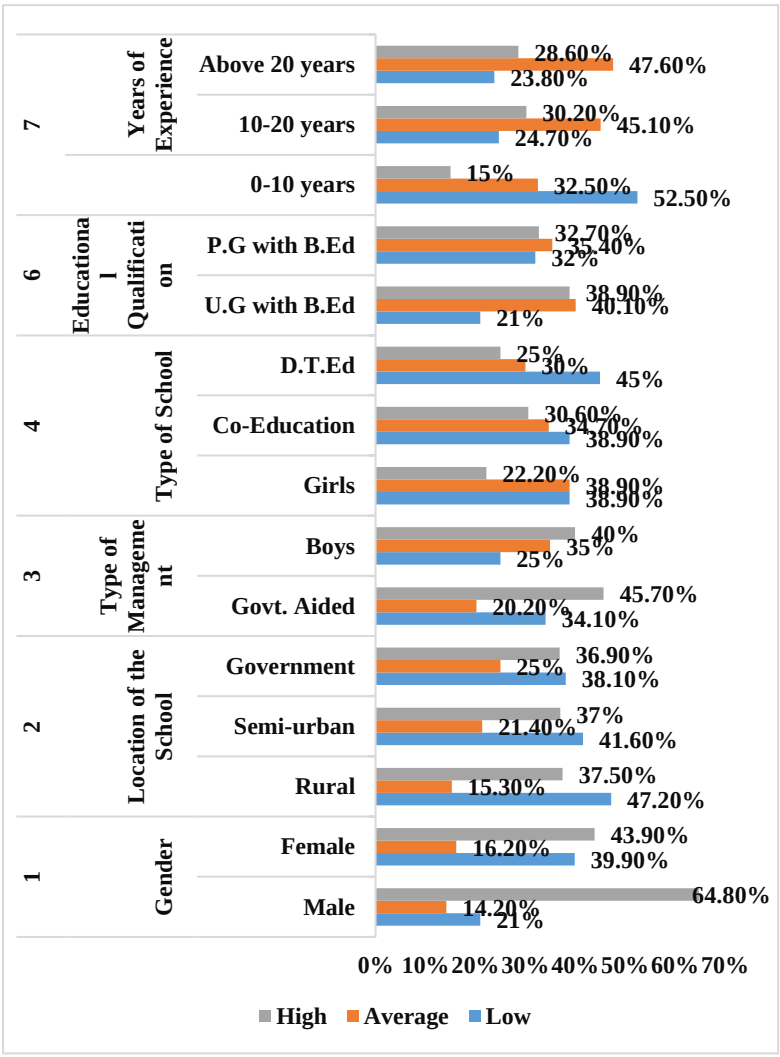
Figure 4.6.Level of Attitude Towards Technology Integration in Curricular Transaction of High School Teachers with Respect to Background Variables



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B) Hypothesis Testing

4.2. OBJECTIVE TESTING

Null Hypothesis 1

There is no significant difference between male and female primary school teachers in their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

TABLE 4.7

Difference between Male and Female Primary School Teachers in their Attitude towards Technology Integration in Curricular Transaction

Gender	N	Mean	Std. Deviation	t-value	Remarks at 5% level
Male	20	153.49	24.164	2.186	S
Female	70	162.23	21.243		

(At 5% level of significance the table value of 't' is 1.96)

It is inferred from the above table that the calculated' value 2.186 is greater than the table value 1.96 at 0.5 % level. Hence the null hypothesis is rejected. Thus there is significant difference between male and female primary school teachers in their attitude towards technology

integration in curricular transaction in Radhapuram Assembly Constituency.

Null Hypothesis 2

There is no significant difference between rural and semi-urban primary school teachers in their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

TABLE 4.8

Difference between Rural and Semi-urban Primary School Teachers in their Attitude towards Technology Integration in Curricular Transaction

Location of school	N	Mean	Std. Deviation	t-value	Remarks at 5% level
Rural	84	166.54	28.164	3.152	S
Semi-urban	06	175.21	21.263		

(At 5% level of significance the table value of 't' is 1.96)

It is inferred from the above table that the calculated't' value 3.152 is greater than the table value 1.96 at 0.5 % level. Hence the null hypothesis is rejected. Thus there is

significant difference between rural and semi-urban primary school teachers in their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

Null Hypothesis 3

There is no significant difference between Government and Government Aided primary school teachers in their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

TABLE 4.9
Difference between Government and Government Aided Primary School Teachers in their Attitude towards Technology Integration in Curricular Transaction

Type of management	N	Mean	Std. Deviation	t-value	p-value
Government	59	162.465	22.314	0.134	NS
Government-aided	31	158.634	20.176		

(At 5% level of significance the table value of't' is 1.96)

It is inferred from the above table that the calculated 't' value 0.134 is less than the table value 1.96 at 0.5 % level.

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Hence the null hypothesis is accepted. Thus there is no significant difference between Government and Government Aided primary school teachers in their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

Null Hypothesis 4

There is no significant difference among boys, girls and co-education primary school teachers and their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

TABLE 4.10
Difference among Boys, Girls and Co-Education Primary School Teachers and their Attitude Towards Technology Integration in Curricular Transaction.

Category	Source of variation	Sum of squares	Degree of freedom	Mean square	Calculated 'F' value	Remarks at 5% level
Type of School	Between	101.56	2	50.78	2.27	NS
	Within	5282.19	297	17.79		

(At 5% level of significance, the table value of 'F' is 3.03)

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It is inferred from the above table that the calculated 'F' value 2.27 is less than the table value 3.03 at 0.5 % level. Hence the null hypothesis is accepted. Thus there is no significant difference among boys, girls and co-education primary school teachers in their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

Null Hypothesis 6

There is no significant difference among educational qualification of primary school teachers and their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

TABLE 4.11

Difference among D.T.Ed, U.G.with B.Ed and P.G.with B.Ed of Educational Qualification of Primary School Teachers and their Attitude Towards Technology Integration in Curricular Transaction

Variable	Category	Sources of variation	Sum of squares	Mean square variance	Calculated 'F' value	Remarks at 5% level
Educational Qualification	D.T.Ed U.G with B.Ed P.G with B.Ed	Between Within	21.46 224.163	6.751 0.941	2.16	NS

(At 5% level of significance, the table value of 'F' is 3.03)

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It is inferred from the above table that the calculated 'F' value 2.16 is less than the table value 3.03 at 0.5 % level. Hence the null hypothesis is accepted. Thus there is no significant difference among educational qualification of primary school teachers in their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

Null Hypothesis 7

There is no significant difference among teaching experience of primary school teachers and their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

TABLE 4.12

Difference among 0-10 Years, 10-20 Years and Above 20 Years of Teaching Experience of Primary School Teachers and their Attitude Towards Technology Integration in Curricular Transaction

Variable	Category	Sources of variation	Sum of squares	Mean square variance	Calculated 'F' value	Remarks at 5%
Years of Experience	0-10 years	Between	18.54	5.176	2.186	NS
	10-20 years	Within	217.276	0.743		
	Above 20 years					

(At 5% level of significance, the table value of 'F' is 3.03)

It is inferred from the above table that the calculated 'F' value 2.186 is less than the table value 3.03 at 0.5 % level. Hence the null hypothesis is accepted. Thus there is no significant difference among 0-10 years, 10-20 years and above 20 years of teaching experience of primary school teachers in their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

Null Hypothesis 8

There is no significant difference between male and female middle school teachers in their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

TABLE 4.13

Difference between male and female middle school teachers in their attitude towards technology integration in curricular transaction

Gender	N	Mean	Std. Deviation	t-value	Remarks at 5% level
Male	24	28.86	4.69	2.27	S
Female	93	29.38	4.64		

(At 5% level of significance the table value of 't' is 1.96)

It is inferred from the above table that the calculated' value 2.27 is greater than the table value 1.96 at 0.5 %

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level. Hence the null hypothesis is rejected. Thus there is significant difference between male and female middle school teachers in their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

Null Hypothesis 9

There is no significant difference between rural and semi-urban middle school teachers in their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

TABLE 4.14

Difference between Rural and Semi-Urban Middle School Teachers in their Attitude Towards Technology Integration in Curricular Transaction

Location of school	N	Mean	Std. Deviation	t-value	Remarks at 5% level
Rural	88	27.07	3.49	1.17	NS
Semi-urban	29	26.03	3.49		

(At 5% level of significance the table value of 't' is 1.96)

It is inferred from the above table that the calculated't' value 1.17 is less than the table value 1.96 at 0.5 % level. Hence the null hypothesis is accepted. Thus there is no significant difference between rural and semi-urban middle school teachers in their attitude towards

technology integration in curricular transaction in Radhapuram Assembly Constituency.

Null Hypothesis 10

There is no significant difference between Government and Government Aided middle school teachers in their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

TABLE 4.15

Difference between government and government aided middle school teachers in their attitude towards technology integration in curricular transaction

Type of management	N	Mean	Std. Deviation	t-value	Remarks at 5% level
Government	33	28.64	5.07	1.35	NS
Government-aided	84	29.40	4.52		

(At 5% level of significance the table value of't' is 1.96)

It is inferred from the above table that the calculated 't' value 1.35 is less than the table value 1.96 at 0.5 % level. Hence the null hypothesis is accepted. Thus there is no significant difference between Government and Government Aided middle school teachers in their attitude

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towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

Null Hypothesis 11

There is no significant difference among boys, girls and co-education middle school teachers and their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

TABLE 4.16
Difference among Boys, Girls and Co-Education Middle School Teachers and their Attitude towards Technology Integration in Curricular Transaction.

Category	Source of variation	Sum of squares	Degree of freedom	Mean square	Calculated 'F' value	Remarks at 5% level
Type of School	Between	4.88	2	28.16	0.11	NS
	Within	4298.54	297	22.14		

(At 5% level of significance, the table value of 'F' is 3.03)

It is inferred from the above table that the calculated 'F' value 0.11 is less than the table value 3.03 at 0.5 % level. Hence the null hypothesis is accepted. Thus there is no

significant difference among boys, girls and co-education middle school teachers and their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

Null Hypothesis 13

There is no significant difference among educational qualification of middle school teachers and their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

TABLE 4.17

Difference among D.T.Ed, U.G.With B.Ed and P.G.with B.Ed of Educational Qualification of Middle School Teachers and their Attitude Towards Technology Integration in Curricular Transaction

Variable	Category	Sources of variation	Sum of squares	Mean square variance	Calculated 'F' value	Remarks at 5% level
Educational Qualification	D.T.Ed U.G with B.Ed P.G with B.Ed	Between Within	33.12 2954.18	19.64 10.34	1.88	NS

(At 5% level of significance, the table value of 'F' is 3.03)

It is inferred from the above table that the calculated 'F' value 1.88 is less than the table value 3.03 at 0.5 % level.

Hence the null hypothesis is accepted. Thus there is no significant difference among educational qualification of middle school teachers and their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

Null Hypothesis 14

There is no significant difference among teaching experience of middle school teachers and their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

TABLE 4.18
Difference among 0-10 Years, 10-20 Years and Above 20 Years of Teaching Experience of Middle School Teachers and their Attitude towards Technology Integration in Curricular Transaction

Variable	Category	Sources of variation	Sum of squares	Mean square variance	Calculated 'F' value	Remarks at 5% level
Years of	0-10 years 10-20 years Above 20 years	Between Within	56.13 3124.67	17.56 9.182	2.32	NS

(At 5% level of significance, the table value of 'F' is 3.03)

It is inferred from the above table that the calculated 'F' value 2.32 is less than the table value 3.03 at 0.5 % level.

Hence the null hypothesis is accepted. Thus there is no significant difference among teaching experience of middle school teachers in their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

Null Hypothesis 15

There is no significant difference between male and female high school teachers in their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

TABLE 4.19
Difference between Male and Female High School Teachers in their Attitude towards Technology Integration in Curricular Transaction

Gender	N	Mean	Std. Deviation	t-value	Remarks at 5% level
Male	**29**	22.91	3.70	1.09	**NS**
Female	**75**	23.59	3.00		

(At 5% level of significance the table value of 't' is 1.96)

It is inferred from the above table that the calculated' value 1.09 is less than the table value 1.96 at 0.5 % level. Hence the null hypothesis is accepted. Thus there is no significant difference between male and female high school teachers in their attitude towards technology

integration in curricular transaction in Radhapuram Assembly Constituency.

Null Hypothesis 16

There is no significant difference between rural and semi-urban high school teachers and their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

TABLE 4.20

Difference Between Rural and Semi-Urban High School Teachers and their Attitude Towards Technology Integration in Curricular Transaction

Location of school	N	Mean	Std. Deviation	t-value	Remarks at 5% level
Rural	95	21.55	3.19	1.55	NS
Semi-urban	09	22.31	2.87		

(At 5% level of significance the table value of 't' is 1.96)

It is inferred from the above table that the calculated't' value 1.55 is less than the table value 1.96 at 0.5 % level. Hence the null hypothesis is accepted. Thus there is no

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significant difference between rural and semi-urban high school teachers in their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

Null Hypothesis 17

There is no significant difference between Government and Government Aided high school teachers in their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

TABLE 4.21
Difference between government and government aided high school teachers in their attitude towards technology integration in curricular transaction

Type of management	N	Mean	Std. Deviation	t-value	Remarks at 5% level
Government	54	23.38	3.44	2.06	S
Government-aided	50	23.41	3.16		

(At 5% level of significance the table value of't' is 1.96)

It is inferred from the above table that the calculated't' value 2.06 is greater than the table value 1.96 at 0.5 % level. Hence the null hypothesis is rejected. Thus there is significant difference between Government and Government Aided high school teachers and their attitude

towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

Null Hypothesis 18

There is no significant difference among boys, girls and co-education high school teachers and their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

Category	Source of variation	Sum of squares	Degree of freedom	Mean square	Calculated 'F' value	Remarks at 5% level
Type of School	Between	248.75	2	124.38	2.49	NS
	Within	12419.75	297	41.82		

TABLE 4.22
Difference among Boys, Girls and Co-Education High School Teachers in their Attitude towards Technology Integration in Curricular Transaction.

(At 5% level of significance, the table value of 'F' is 3.03)

It is inferred from the above table that the calculated 'F' value 2.49 is less than the table value 3.03 at 0.5 % level. Hence the null hypothesis is accepted. Thus there is no significant difference among boys, girls and co-education high school teachers and their attitude towards technology

integration in curricular transaction in Radhapuram Assembly Constituency.

Null Hypothesis 20

There is no significant difference among educational qualification of high school teachers and their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

TABLE 4.23

Difference among Educational Qualification of High School and their Attitude Towards Technology Integration in Curricular Transaction

Variable	Category	Sources of variation	Sum of squares	Mean square variance	Calculated 'F' value	Remarks at 5% level
Educational	D.T. Ed	Between	264.37	123.91	2.08	NS
	U. G with B.Ed.					
	P. G with B.Ed.	Within	12176.75	49.06		

(At 5% level of significance, the table value of 'F' is 3.03)

It is inferred from the above table that the calculated 'F' value 2.08is less than the table value 3.03 at 0.5 % level.

Hence the null hypothesis is accepted. Thus there is no significant difference among educational qualification of high school teachers and their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

Null Hypothesis 21

There is no significant difference among teaching experience of high school teachers and their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

TABLE 4.24

Difference among 0-10 Years, 10-20 Years and Above 20 Years of Teaching Experience of High School Teachers and their Attitude towards Technology Integration in Curricular Transaction

Variable	Category	Sources of variation	Sum of squares	Mean square variance	Calculated 'F' value	Remarks at 5% level
Years of Experience	0-10 Years	Between	318.54	119.176	2.09	NS
	10-20 Years					
	Above 20 Years	Within	18167.276	49.743		

(At 5% level of significance, the table value of 'F' is 3.03)

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It is inferred from the above table that the calculated 'F' value 2.09 is less than the table value 3.03 at 0.5 % level. Hence the null hypothesis is rejected. Thus there is no significant difference among teaching experience of high school teachers and their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

4.3 **Conclusion**

The above said statistical techniques were adopted to realize the objectives and to test the hypotheses. In this chapter the data collected from the target group of School Teachers of Radhapuram District of Tamil Nadu were analysed and interpreted. To put in a nut shell, School Teachers of Radhapuram District of Tamil Nadu were having favourable attitude towards Smart Class Room and Usage of Modern Technology for Teaching and Learning Process. The next chapter deals with the summary of the findings and conclusions.

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CHAPTER-V

SUMMARY, FINDINGS, RECOMMENDATIONS AND CONCLUSIONS

"In literature and in life we ultimately pursue, not conclusions, but beginnings."

Sam Tanenhaus

5.1 Introduction

The aim of any research is to find out an appropriate answer to the problem undertaken and the answer is stated in the form of findings. The investigators have undertaken the present research work to achieve certain objectives leading to highlight the *"Attitude of School Teachers in Radhapuram Assembly Constituency towards Technology Integration in Curricular Transaction".* This chapter highlights the most important part of the research work, the summary and findings. Recommendations based on the findings of the study and suggestions for further research studies are also presented in this chapter.

5.2 Findings of the Present Study

After statistical analysis, the results were drawn and all the results were appropriately the findings are thus listed below.

1.The level of attitude of primary school teachers in Radhapuram Assembly Constituency towards technology integration in curricular transaction are moderate.

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2.The level of attitude of middle school teachers in Radhapuram Assembly Constituency towards technology integration in curricular transaction are moderate.

3.The level of attitude of high school teachers in Radhapuram Assembly Constituency towards technology integration in curricular transaction are moderate.

4.There is significant difference between male and female primary school teachers in their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

5.There is significant difference between rural and semi-urban primary school teachers in their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

6.There is no significant difference between Government and Government Aided primary school teachers in their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

7.There is no significant difference among boys, girls and co-education primary school teachers and their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

8.There is no significant difference among educational qualification of primary school teachers and their attitude

towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

9.There is no significant difference among teaching experience of primary school teachers and their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

10.There is significant difference between male and female middle school teachers in their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

11.There is no significant difference between rural and semi-urban middle school teachers in their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

12.There is no significant difference between Government and Government Aided middle school teachers in their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

13.There is no significant difference among boys, girls and co-education middle school teachers in their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

14.There is no significant difference among educational qualification of middle school teachers in their attitude

towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

15.There is no significant difference among teaching experience of middle school teachers in their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

16.There is no significant difference between male and female high school teachers in their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency

17.There is no significant difference between rural and semi-urban high school teachers in their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

18.There is significant difference between Government and Government Aided high school teachers in their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

19.There is no significant difference among boys, girls and co-education high school teachers and their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

20.There is no significant difference among educational qualification of high school teachers and their attitude

towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

21.There is no significant difference among teaching experience of high school teachers and their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

5.3 INTERPRETATIONS

Interpretation related to finding no-4

There is significant difference between male and female primary school teachers in their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

From table 4.7, it is evident that the calculated t-value 2.186 is greater than the table value 1.96 which is significant at 0.05 level. Thus the null hypothesis is rejected. The mean attitude (162.23) of female, which is significantly higher than the mean attitude (153.49) of male primary school teachers. Hence the null hypothesis is rejected. This may be due to the reason that Female teachers may have had more exposure to professional development opportunities focused on technology integration. This increased training could enhance their comfort and enthusiasm towards using technology in the classroom. They might perceive technology as a valuable tool for engaging students and making lessons more interactive. This perception can lead to a more positive

attitude towards integrating technology into the curriculum. They may benefit from stronger professional networks and collaborative environments, which can provide support and encouragement for technology integration. This support can enhance their attitudes and practices. educational institutions might offer more support for female teachers in integrating technology, contributing to a more favourable attitude. Participation in the training programs might be tailored in a way that particularly resonates with female teachers' needs and interests, leading to more positive attitudes towards technology. Professional development programs could focus on building confidence in using technology, which might be particularly effective for female teachers. Female teachers may be more open to innovative teaching methods and tools, including technology, driven by personal attitudes or beliefs about modernizing education. This result contradicted with the study conducted by Pramod Singh Chauhan & Poonam Sharma (2023) and Sangeeta Rani(2019). Their result indicates that there is no significant difference between the mean attitude score of male and female.

Interpretation related to finding no-5

There is significant difference between rural and semi-urban primary school teachers in their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

From table 4.8, it is evident that the calculated t-value 3.152 is greater than the table value 1.96 which is significant at 0.05 level. Thus the null hypothesis is rejected. The mean attitude (175.21) of semi urban, which is significantly higher than the mean attitude (166.54) of rural primary school teachers. Hence the null hypothesis is rejected.

This may be due to the reason that semi-urban primary school teachers often have advantages in terms of infrastructure, resources, and exposure compared to rural areas. They might have a more positive attitude towards smart classroom usage compared to their rural counterparts.

Semi-urban schools are more likely to have access to better infrastructure, including reliable electricity, internet connectivity, and modern technological equipment. This availability makes it easier for teachers to integrate and use smart classroom technologies effectively. The availability of ongoing professional development and support in semi-urban areas helps teachers stay updated with the latest technological advancements and teaching strategies. Semi urban teachers often experience higher levels of exposure to technology and digital tools in both personal and professional contexts. This familiarity can lead to a more positive attitude towards technology integration in education. They have better access to technical support and maintenance services for smart classroom equipment, which reduces the likelihood of

technical issues and fosters a more positive attitude towards technology usage.

School administrations in semi-urban areas may be more supportive of technology integration, providing necessary resources and encouragement for teachers to use smart classroom tools effectively. Teachers in semi-urban areas might experience greater demand for innovative teaching methods from students and parents, driving them to embrace smart classroom technologies.

The result of the study contradicted by the study conducted by Prabhu & Vaiyapuri Raja (2019). In their study they showed that there is no significant difference in smart classroom knowledge between the teachers working in the schools located in the urban areas and in the rural areas.

Interpretation related to finding no-10

There is significant difference between male and female middle school teachers in their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

From table 4.13, it is evident that the calculated' value 2.27 is greater than the table value 1.96 at 0.5 % level. Hence the null hypothesis is rejected. The mean attitude (29.38) of female, which is significantly higher than the mean attitude (28.86) of male middle school teachers. Hence the null hypothesis is rejected.

Female middle school teachers often have a more positive attitude towards technology integration and smart classroom usage than their male counterparts due to a combination of factors. They tend to embrace collaborative and interactive teaching methods, actively seek professional development in technology, and view tech tools as beneficial for enhancing student engagement and supporting diverse learning needs. Their adaptability, openness to innovation, and emphasis on a student-centered approach contribute to their favourable attitudes, as does their involvement in supportive professional networks that encourage effective technology use. These factors collectively drive a higher enthusiasm for integrating smart classroom technologies in their teaching. They inclined towards using collaborative and interactive teaching methods, which align seamlessly with the dynamic features of smart classroom technology, such as multimedia presentations and interactive whiteboards. This inclination is often supported by a strong commitment to professional development, where female teachers are frequently proactive in attending workshops and training sessions focused on technology, thus enhancing their skills and confidence. Additionally, female teachers often perceive smart classroom tools as valuable assets that can significantly boost student engagement and cater to diverse learning styles, which aligns with their focus on differentiated instruction. Their openness to experimentation and innovation further drives

their positive attitudes, as they are more likely to explore new technologies and incorporate them into their teaching practices. Supportive professional networks also play a crucial role, as female teachers benefit from collaborative environments that provide resources, ideas, and encouragement for effective technology use. This combination of factors including adaptability, a student-centered approach, and a robust support system contributes to their higher enthusiasm and more favourable attitudes towards integrating smart classroom technologies into their educational practices. This result contradicted the study conducted by Sadashiv Barad and Prasanta Kumar Acharya (2023). In their study they found that, Gender, and Training of the teachers has not any difference on secondary teacher's attitude towards smart classroom teaching in Nayagarh and Kandhamal districts.

Interpretation related to finding no-18

There is significant difference between Government and Government Aided high school teachers in their attitude towards technology integration in curricular transaction in Radhapuram Assembly Constituency.

From table 4.21, it is evident that the calculated t-value 2.06 is greater than the table value 1.96 which is significant at 0.05 level. Thus the null hypothesis is rejected. The mean attitude (23.41) of Government-aided which is significantly higher than the mean attitude (23.38) of Government high school teachers. Hence the

null hypothesis is rejected. Government-aided high school teachers often display a more positive attitude towards technology integration compared to their government counterparts due to several influential factors. These teachers frequently benefit from enhanced resources and innovative programs funded by private partners or NGOs, which provide advanced technological tools and support that foster enthusiasm for technology use. Additionally, they often receive tailored professional development and training focused on technology integration, improving their skills and confidence. The supportive culture and community engagement in government-aided schools also encourage experimentation with new technologies, boosting teachers' positive attitudes. Furthermore, incentives and recognition programs related to technology use can motivate teachers, while the greater flexibility and autonomy in implementing new technologies compared to more regulated government schools contribute to a more proactive approach. This combination of external support, specialized training, and a conducive environment leads to a higher attitude towards technology integration among government-aided high school teachers. This result supported by the study conducted by Baskaran (2015). The result showed that there is a significant difference among the high school teachers in the level of attitude towards using modern technologies with respect to the type of school.

5.4 Educational Implications

In today's world, technology is integral to nearly every aspect of our lives, offering us convenience, efficiency,

and enhanced comfort. As we move forward, embracing digital integration becomes essential. Traditional classrooms, with their reliance on books and blackboards, seem outdated in this era of rapid technological advancement. To meet the needs of a generation raised with smartphones and tablets, we must adapt our educational environments accordingly. Generation X, familiar with smart technology, requires schools that evolve alongside their technological fluency. Smart classrooms facilitate personalized learning experiences, making them the most effective educational tools in today's digital age. The results obtained from the present study helps the researcher to arrive at some educational implications for the techno friendly younger generation of the society. This study addressed the Attitude of School Teachers in Radhapuram Assembly Constituency towards Technology Integration in Curricular Transaction.

First factor is Enhanced Engagement which includes the variables like Smart classrooms had increased student participation and interest in the subject matter, captured students' attention more effectively than traditional methods, Visual aids, videos, and interactive presentations make learning more engaging, improves student's active participate in activities and Smart classroom experiences ensured student's engagement and challenges at their level. Second factor is named as Personalized Learning and its associated variables are Enable educators to tailor their

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teaching methods to individual learning styles and preferences, allowed educators to create customized learning paths for each student, Facilitate timely and personalized feedback on student performance, Allow students to learn at their own pace, accessing course materials, lectures, and resources and Empower students to create personalized learning environments that suit their preferences and needs. Third factor is Access to Resources which includes the variables like Allows students to easily search for and access relevant materials from anywhere, Online material has reduced costs and increased the accessibility for students, Digital tools had provided hands-on learning experiences that supplement traditional laboratory activities and Allowed students to navigate and access course materials from a single online portal. Fourth factor is Collaborative Learning and its associated variables are Smart classrooms had promoted teamwork and collaboration among students, allowed to work together on group projects, share ideas, and discuss concepts in real-time, fostered a collaborative learning environment that mirrors real-world professional settings and opened up opportunities for global collaboration and cultural exchange

The following recommendations are made on the basis of findings and the empirical knowledge gained by the investigators in the present study. The installation of smart classrooms for the Government and Government

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aided schools in Radhapuram Assembly Constituency in Tirunelveli District under the firm effort taken by **Tamil Nadu Assembly Speaker Thiru M. Appavu** and inaugurated by the **Honourable Chief Minister Thiru M. K. Stalin.**

The results of this study provide the following recommendations

- Encourage teachers to embrace the smart classroom approach in their teaching practices.
- Focus on enhancing teachers' technological competencies to effectively utilize smart classroom tools.
- Provide targeted training for educators on how to pedagogically integrate smart classrooms into their lessons.
- Ensure that each school has dedicated technical support to assist teachers with any issues related to smart classroom technology.
- Help teachers understand the distinctions between traditional classrooms and those equipped with Smart Boards.
- Address the potential for over-reliance on technology in teacher training programs to promote a balanced approach to tech integration.

The findings of the study have following significant educational implications:

1. The present school curriculum needs to be modified according to the current technology development.
2. Teacher Education Curriculum must have compulsory Core Paper in Computer Education and Technology Tools.
3. There should be the centre for training the teachers at Block Level, Regional Level, State Level in the field of Multimedia, Educational Technology, Information Communication Technology, Interactive White Board technology etc., to facilitate the teaching and learning in a better manner.
4. Co-curricular Activities like Computer based Clubs can be created to give knowledge about the computer and technology devices for students as well as teachers.
5. Technology based Seminars, Conference, Symposium, Workshops, Refresher Course and Orientation Course can be extended to the teachers to develop technology skills in them.
6. The school management should focus on enhancing teachers' technological skills for effective classroom integration.
7. School authorities in rural areas should ensure consistent electricity and internet access.
8. Organize workshops and seminars for pre-service and in-service science teachers to train them in using smart

boards, aimed at enhancing their skills and improving their attitudes towards technology in the classroom.

9. A positive attitude towards smart classrooms is essential, as it helps teachers stay updated with the latest content and keeps them aligned with the evolving demands of the times.
10. Sharing resources between educational institutions should be encouraged to increase awareness and knowledge of modern technology devices.
11. Compulsory computer education programs should be organized by Extension Services Departments to develop essential skills among teachers.
12. Schools can establish Computer Literacy Clubs to promote active learning among teachers and students.

5.5 Recommendations for Future Research

Based on the findings and limitations, it is possible to derive several recommendations for future research and practice. These recommendations are as follows:

1. The study can be carried out by choosing teachers from other district as well as the state's schools.
2. Investigate how cultural and contextual variables affect teachers' attitudes toward technology.
3. Analyze the effects of specialized teacher training initiatives that aim to improve teachers' knowledge of and comfort by utilizing a range of technological resources for teaching.

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4. Examine the use of certain technology integration models in the classroom (such as the SAMR model) and how it affects the efficiency of assessments that are assisted by technology.
5. Conduct longitudinal research to monitor the evolution of teachers' attitudes toward technology integration.
6. Investigate how technology can be used to facilitate differentiated instruction, meeting the diverse learning requirements of students, and improve overall learning outcomes.
7. Investigate the correlation between assessment techniques facilitated by technology and different pedagogical approaches, such as inquiry-based learning and project-based learning, to identify the most effective areas of integration.

5.6 Conclusion

Higher education in India has undergone significant transformation thanks to the advent of smart classrooms, which have profoundly impacted both teaching and learning. These modern educational environments seamlessly integrate technology into the learning process, creating more dynamic and engaging experiences for students. With interactive whiteboards, video slideshows, and a plethora of online tools, smart classrooms make learning more interactive and captivating, which helps students retain and comprehend information more effectively. Smart classrooms also facilitate personalized learning. Students can progress through subjects at their

own pace and delve deeper into areas of personal interest, thanks to the wide array of digital resources and tools available. Adaptive learning technologies further enhance this personalization by tailoring content to meet the unique needs of each student, accommodating diverse learning styles and abilities. Additionally, smart classrooms promote collaborative learning. Students can engage in online discussions, virtual group projects, and real-time communication, both inside and outside the classroom. This collaborative approach not only enhances teamwork and communication skills but also exposes students to diverse perspectives and ideas. Another advantage of smart classrooms is the provision of immediate feedback. Through online quizzes, polls, and assessments, instructors can quickly gauge student progress and adjust their teaching methods accordingly. This responsiveness helps address any learning gaps more effectively and ensures a more impactful educational experience.

Educational technology is a multifaceted, integrated process that involves people, procedures, ideas, devices, and organizations to address challenges in all aspects of human learning. Visual impressions are particularly powerful, as nearly 80% of our experiences are processed through sight. This study reveals that most school teachers in the Radhapuram Assembly Constituency have an average attitude towards technology integration in their teaching practices.

The education sector is now embracing smart classrooms, representing a new vision in teaching and learning. Smart

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learning approaches offer innovative tools and a tech-based environment suitable for learners of all ages. The integration of smart classroom and various educational technologies into teaching methods is becoming the norm, promising a smarter, more engaging learning experience. The concept of smart classrooms not only sparks interest in studies but also brings a fresh perspective to education for both teachers and students. This study explores the relationship between teachers' knowledge of smart classrooms and their attitudes towards smart classroom teaching. As technology rapidly evolves, it profoundly impacts the teaching and learning process, creating environments that foster meaningful and enduring learning experiences.

In summary, the integration of smart classrooms in higher education in India has revolutionized teaching and learning by fostering engagement, personalization, access to resources, and collaboration. These advancements equip students with the skills and knowledge needed to thrive in the digital era. As technology continues to evolve, smart classrooms are poised to remain a crucial component of the future of higher education in India. Research into teachers' attitudes towards technology integration confirms that enhanced engagement, personalized learning, access to resources, and collaborative learning are key factors driving the effectiveness of smart classrooms in education.

APPENDIX

DRAFT TOOL

TITLE OF THE PROJECT

ATTITUDE OF SCHOOL TEACHERS IN RADHAPURAM ASSEMBLYCONSTITUENCY TOWARDS TECHNOLOGY INTEGRATION IN CURRICULAR TRANSACTION

Name of the Institution: St.Ignatius College of Education (Autonomous)

Palayamkottai, Tirunelveli- 627 002

அன்பார்ந்த ஆசிரியர்களே,

எங்களது ஆராய்ச்சி தொடர்பாக உங்களிடமிருந்து சில விவரங்கள் தேவைப்படுகின்றன. அவற்றை உரிய வகையில் அளித்து உதவும்படி கேட்டுக் கொள்கிறோம். இவை ரகசியமாகப் பாதுகாப்பகப்பட்டு எங்களுடைய ஆராய்ச்சிக்கு மட்டும் பயன்படுத்தப்படும் என உறுதி அளிக்கிறோம்.

தங்கள் நன்றியுள்ள,
ஆராச்சியாளர்கள்

Personal Information

பாலினம் Gender	□ ஆண் □ Male	□ பெண் □ Female	
வகுப்பு கையாளுதல் Class Handling	□ தொடக்கப்பள்ளி □ Primary School	□ நடுநிலைப்பள்ளி □ Middle School	□ உயர்நிலைப் பள்ளி □ High School
கற்பித்தல் அனுபவம் Years of Teaching Experience	□ 5 ஆண்டுகளுக்கு கீழ் □ Below 5 Years	□ 5-10 ஆண்டுகள் □ 5-10 Years	□10 ஆண்டுகளுக்கு மேல் □ Above 10 Years
கல்வித் தகுதி Educational Qualification	□D.TEd □ D.TEd	□ இளங்கலை உடன் B.Ed □Undergraduate with B.Ed	□ முதுகலை உடன் B.Ed □ Postgraduate with B.Ed
படிப்பின் வகை Stream of Study	□கலை □Arts	□அறிவியல் □Science	
பள்ளி இருப்பிடம் Location of the School	□ கிராம் □ Rural	□ புறநகர் பகுதி □ Semi-Urban	
பள்ளியின் வகை Type of the School	□ ஆண்கள் □ Boys	□ பெண்கள் □ Girls	□ இருபாலர் □ Coeducation
பள்ளி நிர்வாகத்தின் தன்மை Type of Management	□ அரசு □ Govt.	□ அரசு உதவி □ Aided	
ஸ்மார்ட் வகுப்பறையில் செலவழித்த நேரம் Time spent on the smart classroom	□ 2 மணிநேரத்திற்கும் குறைவாக □ Less than 2 hours	□ 2-4 மணி நேரம் □ 2-4 hours	□ 4 மணி நேரத்திற்கு மேல் □ Above 4 hours

S.No	Statement	Agree	Undecided	Disagree
1.	Teaching through smart classrooms enhances my Teaching proficiency. ஸ்மார்ட் வகுப்பறைகள் மூலம் கற்பிப்பது எனது கற்பித்தல் திறனை மேம்படுத்துகிறது.			
2.	The teaching materials available in the smart classrooms are easily accessible to me. ஸ்மார்ட் வகுப்பறைகளில் கிடைக்கும் கற்பித்தல் பொருட்கள் எனக்கு எளிதில் அணுகக்கூடியவை.			
3.	Teaching contents in the smart classrooms provoke to prepare for class effectively. ஸ்மார்ட் வகுப்பறையில் உள்ளடக்கங்களைக் கற்பிப்பது, வகுப்பிற்குத் திறம்படத் தயாராவதற்குத் தூண்டுகிறது.			
4.	I feel excited while teaching through smart classrooms. ஸ்மார்ட் வகுப்பறைகள் மூலம் கற்பிக்கும்போது நான் உற்சாகமாக உணர்கிறேன்.			
5.	Smart classrooms help me to make the classes more interesting and attentive. ஸ்மார்ட் வகுப்பறைகள் வகுப்புகளை மிகவும் சுவாரஸ்யமாகவும் கவனத்துடனும் செய்ய எனக்கு உதவுகிறது.			
6.	Smart classroom teaching enhances my scientific hobbies and interest. ஸ்மார்ட் வகுப்பறை கற்பித்தல் எனது அறிவியல் பொழுதுபோக்குகளையும் ஆர்வத்தையும் அதிகரிக்கிறது.			
7.	Graphic presentations and 3D animations make it easier to explain difficult concepts in the smart classroom. கிராஃபிக் விளக்கக்காட்சிகள் மற்றும் முப்பரிமாண அனிமேஷன்கள் ஸ்மார்ட் வகுப்பறைகளில் கற்பிக்கும் போது கடினமான கருத்துக்களை விளக்குவதை எளிதாக்குகின்றன.			
8.	Smart classroom instruction helps me to hone my student's imaginative creativity. எனது மாணவர்களின் கற்பனைத்திறனை மேம்படுத்த ஸ்மார்ட் வகுப்பறை கற்பித்தல் எனக்கு உதவுகிறது.			
9.	Smart classroom video helps me to train the slow learners in their subjects easily. ஸ்மார்ட் வகுப்பறை காணொளி மெதுவாக கற்பவர்களுக்கு அவர்களின் பாடங்களில் எளிதாக பயிற்சி அளிக்க எனக்கு உதவுகிறது.			
10.	Smart classroom teaching boosts the confidence and encourages me to teach beyond the textbook activities. ஸ்மார்ட் வகுப்பறை கற்பித்தல் தன்னம்பிக்கையை அதிகரிக்கிறது மற்றும் பாடநூல் செயல்பாடுகளுக்கு அப்பால் கற்பிக்க என்னை ஊக்குவிக்கிறது.			
11.	Smart classroom teaching increases my aesthetic sense. ஸ்மார்ட் வகுப்பறை கற்பித்தல் எனது அழகியல் உணர்வை அதிகரிக்கிறது.			
12.	Smart classroom teaching enhances my communication skill. ஸ்மார்ட் வகுப்பறை கற்பித்தல் எனது தொடர்புத் திறனை மேம்படுத்துகிறது.			
13.	The audio-visual study materials based on the school curriculum provided by Smart classroom helps me to teach confidently. ஸ்மார்ட் வகுப்பறை வழங்கும் பள்ளி பாடத்திட்டத்தின் அடிப்படையிலான ஒலி-ஒளி காட்சி படிப்பு பொருட்கள் எனக்கு நம்பிக்கையுடன் கற்பிக்க உதவுகிறது.			
14.	I feel comfortable while teaching with the help of Smart Board. ஸ்மார்ட் போர்டைப் பயன்படுத்தி கற்பிக்கும்போது நான் வசதியாக உணர்கிறேன்.			
15.	Smart classroom enables teaching lesson from different sources. ஸ்மார்ட் வகுப்பறை பல்வேறு ஆதாரங்களில் இருந்து பாடம் கற்பிக்க எனக்கு உதவுகிறது.			

16.	I feel nervous when using the Smart Board. ஸ்மார்ட் போர்டைப் பயன்படுத்தும் போது நான் பதட்டமாக உணர்கிறேன்.			
17.	I can easily demonstrate every lesson's crucial aspect with visual presentations in smart classroom. ஸ்மார்ட் வகுப்பறையில் காட்சி விளக்கக்காட்சிகள் மூலம் ஒவ்வொரு பாடத்தின் முக்கிய அம்சத்தையும் என்னால் எளிதாக விளக்க முடியும்.			
18.	Smart Class helps me to teach historical events more exciting and easy. வரலாற்று நிகழ்வுகளை மிகவும் சுவாரசியமாகவும் எளிதாகவும் கற்பிக்க ஸ்மார்ட் கிளாஸ் எனக்கு உதவுகிறது.			
19.	FAQ session in Smart Classroom increases curiosity while teaching. ஸ்மார்ட் வகுப்பறையில் அடிக்கடி கேட்கப்படும் கேள்விகள், கற்பிக்கும் போது ஆர்வத்தை அதிகரிக்கிறது.			
20.	Smart classroom teaching reduces distractions. ஸ்மார்ட் வகுப்பறை கற்பித்தல் கவனச்சிதறல்களை குறைக்கிறது.			
21.	Smart classroom teaching enhances my concentration. ஸ்மார்ட் வகுப்பறை கற்பித்தல் எனது கவனத்தை மேம்படுத்துகிறது.			
22.	Smart technology elements like images, graphs, flow charts, and videos help me to teach the concept quickly. படங்கள், வரைபடங்கள், பாய்வு விளக்கப்படங்கள் மற்றும் வீடியோக்கள் போன்ற ஸ்மார்ட் தொழில்நுட்பக் கூறுகள் கருத்தை விரைவாகக் கற்பிக்க எனக்கு உதவுகின்றன.			
23.	Smart classroom teaching helps me to sharpen the creativity. ஸ்மார்ட் வகுப்பறை கற்பித்தல் எனது படைப்பாற்றல் திறனை கூர்மைப்படுத்த உதவுகிறது.			
24.	Smart classroom teaching increase my open-mindedness and this attitude help me in innovating new teaching methods. ஸ்மார்ட் வகுப்பறை கற்பித்தல் எனது திறந்த மனப்பான்மையை அதிகரிக்கிறது மற்றும் இந்த அணுகுமுறை புதிய கற்பித்தல் முறைகளை கண்டுபிடிப்பதில் எனக்கு உதவுகிறது.			
25.	Smart classroom teaching increases my constructional skills. ஸ்மார்ட் வகுப்பறை கற்பித்தல் எனது ஆக்கபூர்வ திறனை அதிகரிக்கிறது.			
26.	Smart classroom boosts my experimentation skills. ஸ்மார்ட் வகுப்பறை எனது ஆராய்ச்சி திறன்களை அதிகரிக்கிறது.			
27.	Smart classroom teaching improves my students' academic performance. ஸ்மார்ட் வகுப்பறை கற்பித்தல் எனது மாணவர்களின் கல்வி செயல்திறனை மேம்படுத்துகிறது.			
28.	Smart classroom teaching enriches my observation skills. ஸ்மார்ட் வகுப்பறை கற்பித்தல் எனது கவனிப்புத் திறனை மேம்படுத்துகிறது.			

FINAL TOOL

TITLE OF THE PROJECT

ATTITUDE OF SCHOOL TEACHERS IN RADHAPURAM ASSEMBLYCONSTITUENCY TOWARDS TECHNOLOGY INTEGRATION IN CURRICULAR TRANSACTION

Name of the Institution: St.Ignatius College of Education (Autonomous)

Palayamkottai, Tirunelveli- 627 002

அன்பார்ந்த ஆசிரியர்களே,

எங்களது ஆராய்ச்சி தொடர்பாக உங்களிடமிருந்து சில விவரங்கள் தேவைப்படுகின்றன. அவற்றை உரிய வகையில் அளித்து உதவும்படி கேட்டுக் கொள்கிறோம். இவை ரகசியமாகப் பாதுகாப்பகப்பட்டு எங்களுடைய ஆராய்ச்சிக்கு மட்டும் பயன்படுத்தப்படும் என உறுதி அளிக்கிறோம்.

தங்கள் நன்றியுள்ள,

ஆராச்சியாளர்கள்

Personal Information

பாலினம் Gender	□ ஆண் □ Male	□ பெண் □ Female	
வகுப்பு கையாளுதல் Class Handling	□ தொடக்கப்பள்ளி □ Primary School	□ நடுநிலைப்பள்ளி □ Middle School	□ உயர்நிலைப் பள்ளி □ High School
கற்பித்தல் அனுபவம் Years of Teaching Experience	□ 5 ஆண்டுகளுக்கு கீழ் □ Below 5 Years	□ 5-10 ஆண்டுகள் □ 5-10 Years	□ 10 ஆண்டுகளுக்கு மேல் □ Above 10 Years
கல்வித் தகுதி Educational Qualification	□ D.TEd □ D.TEd	□ இளங்கலை உடன் B.Ed □ Undergraduate with B.Ed	□ முதுகலை உடன் B.Ed □ Postgraduate with B.Ed
படிப்பின் வகை Stream of Study	□ கலை □ Arts	□ அறிவியல் □ Science	
பள்ளி இருப்பிடம் Location of the School	□ கிராம் □ Rural	□ புறநகர் பகுதி □ Semi-Urban	
பள்ளியின் வகை Type of the School	□ ஆண்கள் □ Boys	□ பெண்கள் □ Girls	□ இருபாலர் □ Coeducation
பள்ளி நிர்வாகத்தின் தன்மை Type of Management	□ அரசு □ Govt.	□ அரசு உதவி □ Aided	
ஸ்மார்ட் வகுப்பறையில் செலவழித்த நேரம்	□ 2 மணிநேரத்திற்கும் குறைவாக	□ 2-4 மணி நேரம்	□ 4 மணி நேரத்திற்கு மேல்

S.No	Statement	Agree	Undecided	Disagree
1.	Teaching through smart classrooms enhances my Teaching proficiency. ஸ்மார்ட் வகுப்பறைகள் மூலம் கற்பிப்பது எனது கற்பித்தல் திறனை மேம்படுத்துகிறது.			
2.	The teaching materials available in the smart classrooms are easily accessible to me. ஸ்மார்ட் வகுப்பறைகளில் கிடைக்கும் கற்பித்தல் பொருட்கள் எனக்கு எளிதில் அணுகக்கூடியவை.			
3.	Teaching contents in the smart classrooms provoke to prepare for class effectively. ஸ்மார்ட் வகுப்பறையில் உள்ளடக்கங்களைக் கற்பிப்பது, வகுப்பிற்குத் திறம்படத் தயாராவதற்குத் தூண்டுகிறது.			
4.	I feel excited while teaching through smart classrooms. ஸ்மார்ட் வகுப்பறைகள் மூலம் கற்பிக்கும்போது நான் உற்சாகமாக உணர்கிறேன்.			
5.	Smart classrooms help me to make the classes more interesting and attentive. ஸ்மார்ட் வகுப்பறைகள் வகுப்புகளை மிகவும் சுவாரஸ்யமாகவும் கவனத்துடனும் செய்ய எனக்கு உதவுகிறது.			
6.	Smart classroom teaching enhances my scientific hobbies and interest. ஸ்மார்ட் வகுப்பறை கற்பித்தல் எனது அறிவியல் பொழுதுபோக்குகளையும் ஆர்வத்தையும் அதிகரிக்கிறது.			
7.	Graphic presentations and 3D animations make it easier to explain difficult concepts in the smart classroom. கிராஃபிக் விளக்கக்காட்சிகள் மற்றும் முப்பரிமாண அனிமேஷன்கள் ஸ்மார்ட் வகுப்பறைகளில் கற்பிக்கும் போது கடினமான கருத்துக்களை விளக்குவதை எளிதாக்குகின்றன.			
8.	Smart classroom video helps me to train the slow learners in their subjects easily. ஸ்மார்ட் வகுப்பறை காணொளி மெதுவாக கற்பவர்களுக்கு அவர்களின் பாடங்களில் எளிதாக பயிற்சி அளிக்க எனக்கு உதவுகிறது.			
9.	Smart classroom teaching boosts the confidence and encourages me to teach beyond the textbook activities. ஸ்மார்ட் வகுப்பறை கற்பித்தல் தன்னம்பிக்கையை அதிகரிக்கிறது மற்றும் பாடநூல் செயல்பாடுகளுக்கு அப்பால் கற்பிக்க என்னை ஊக்குவிக்கிறது.			
10	Smart classroom teaching increases my aesthetic sense. ஸ்மார்ட் வகுப்பறை கற்பித்தல் எனது அழகியல் உணர்வை அதிகரிக்கிறது.			
11	Smart classroom teaching enhances my communication skill. ஸ்மார்ட் வகுப்பறை கற்பித்தல் எனது தொடர்புத் திறனை மேம்படுத்துகிறது.			
12	The audio-visual study materials based on the school curriculum provided by Smart classroom helps me to teach confidently. ஸ்மார்ட் வகுப்பறை வழங்கும் பள்ளி பாடத்திட்டத்தின் அடிப்படையிலான ஒலி-ஒளி காட்சி படிப்பு பொருட்கள் எனக்கு நம்பிக்கையுடன் கற்பிக்க உதவுகிறது.			
13	I feel comfortable while teaching using the Smart Board. ஸ்மார்ட் போர்டைப் பயன்படுத்தி கற்பிக்கும்போது நான் வசதியாக உணர்கிறேன்.			
14	Smart classroom enables teaching lesson from different sources. ஸ்மார்ட் வகுப்பறை பல்வேறு ஆதாரங்களில் இருந்து பாடம் கற்பிக்க எனக்கு உதவுகிறது.			
15	I can easily demonstrate every lesson's crucial aspect with visual presentations in smart classroom.			

	ஸ்மார்ட் வகுப்பறையில் காட்சி விளக்கக்காட்சிகள் மூலம் ஒவ்வொரு பாடத்தின் முக்கிய அம்சத்தையும் என்னால் எளிதாக விளக்க முடியும்.			
16	Smart Class helps me to teach historical events more exciting and easy. வரலாற்று நிகழ்வுகளை மிகவும் சுவாரசியமாகவும் எளிதாகவும் கற்பிக்க ஸ்மார்ட் கிளாஸ் எனக்கு உதவுகிறது.			
17	FAQ session in Smart Classroom increases curiosity while teaching. ஸ்மார்ட் வகுப்பறையில் அடிக்கடி கேட்கப்படும் கேள்விகள், கற்பிக்கும் போது ஆர்வத்தை அதிகரிக்கிறது.			
18	Smart classroom teaching reduces distractions. ஸ்மார்ட் வகுப்பறை கற்பித்தல் கவனச்சிதறல்களை குறைக்கிறது.			
19	Smart classroom teaching enhances my concentration. ஸ்மார்ட் வகுப்பறை கற்பித்தல் எனது கவனத்தை மேம்படுத்துகிறது.			
20	Smart technology elements like images, graphs, flow charts, and videos help me to teach the concept quickly. படங்கள், வரைபடங்கள், பாய்வு விளக்கப்படங்கள் மற்றும் வீடியோக்கள் போன்ற ஸ்மார்ட் தொழில்நுட்பக் கூறுகள் கருத்தை விரைவாகக் கற்பிக்க எனக்கு உதவுகின்றன.			
21	Smart classroom teaching helps me to sharpen the creativity. ஸ்மார்ட் வகுப்பறை கற்பித்தல் எனது படைப்பாற்றல் திறனை கூர்மைப்படுத்த உதவுகிறது.			
22	Smart classroom teaching increase my open-mindedness and this attitude help me in innovating new teaching methods. ஸ்மார்ட் வகுப்பறை கற்பித்தல் எனது திறந்த மனப்பான்மையை அதிகரிக்கிறது மற்றும் இந்த அணுகுமுறை புதிய கற்பித்தல் முறைகளை கண்டுபிடிப்பதில் எனக்கு உதவுகிறது.			
23	Smart classroom teaching increases my constructional skills. ஸ்மார்ட் வகுப்பறை கற்பித்தல் எனது ஆக்கபூர்வ திறனை அதிகரிக்கிறது.			
24	Smart classroom boosts my experimentation skills. ஸ்மார்ட் வகுப்பறை எனது ஆராய்ச்சி திறன்களை அதிகரிக்கிறது.			
25	Smart classroom teaching enriches my observation skills. ஸ்மார்ட் வகுப்பறை கற்பித்தல் எனது கவனிப்புத் திறனை மேம்படுத்துகிறது.			

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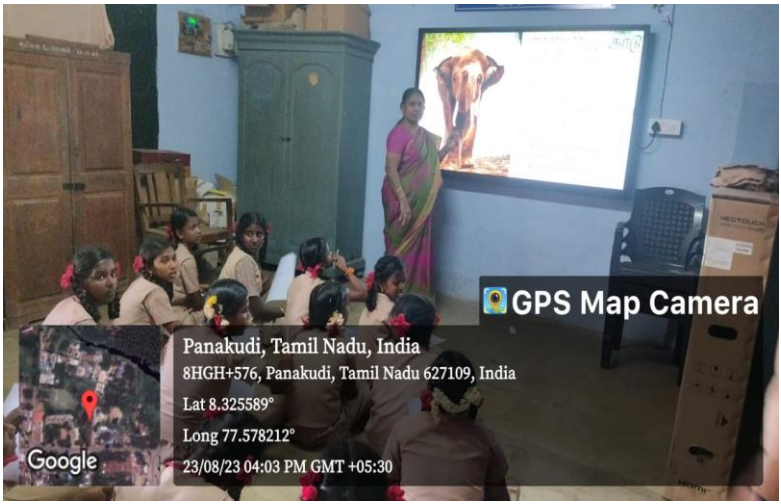
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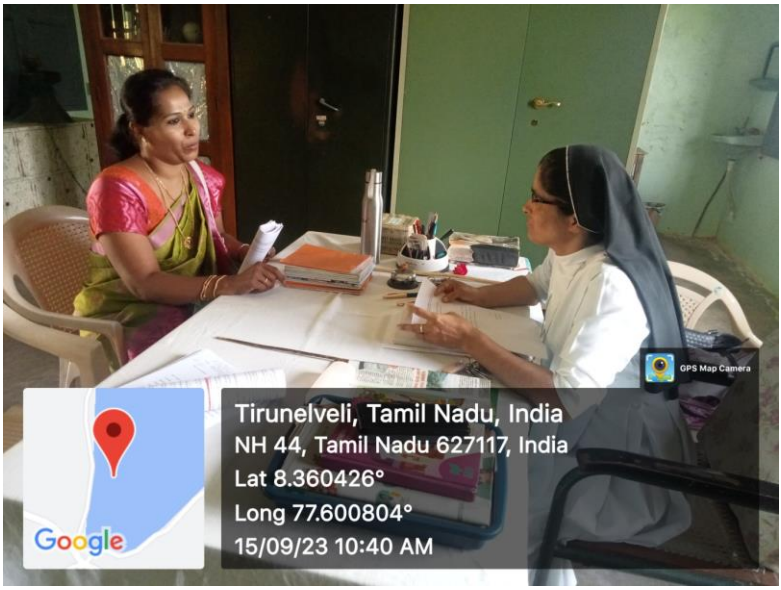
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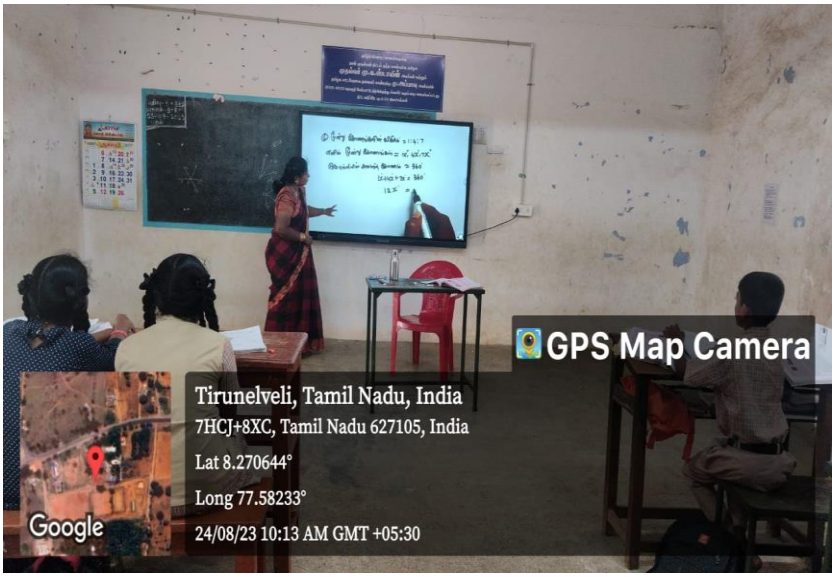
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