

**A STUDY OF THE ASSESSMENT OF MODERN TECHNOLOGIES
IN SECONDARY SCHOOLS OF GORAKHPUR**



DISSERTATION

Submitted In Partial Fulfillment of the Requirement for Award of **Degree of
Master of Education (M.Ed.)**

Supervisor

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Submitted By

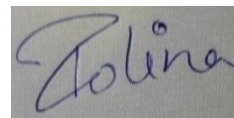
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Declaration

This is to certify that I have completed this dissertation work entitled “A Study of the Assessment of Modern Technologies in Secondary Schools of Gorakhpur” in the Department of Education, Integral University, Lucknow under the supervision of **Dr. E. Ahmad**. The data given in the study are genuine and not given earlier. I am fully responsible for all the quotations, citations, calculations and interpretations.



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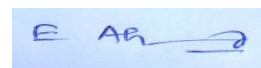
Certificate

This is to certify that M.Ed. Dissertation entitled “A Study of the Assessment of Modern Technologies in Secondary Schools of Gorakhpur” submitted by **POLINA PANZY MECARTY** in partial fulfillment of the requirements for the award of Degree of Master of Education (M.Ed.) has been conducted under my guidance and supervision.

In my humble judgment, the work is original and can be considered a contribution to our knowledge of the subject.

Date- 27/07/2020

Supervisor

A blue rectangular box containing a handwritten signature in blue ink. The signature appears to be 'E. Ahmad' followed by a stylized flourish.

Dr. E. Ahmad

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Acknowledgment

First and Foremost, praises and thanks to the God, the Almighty, for his showers of blessings throughout my course of this work. Writing this page brings memories of some special moments and people who influenced me during the course of this work. Learned souls put me on the right path for the search of truth and enlightened me with their knowledge and experience. I would express my sincere thanks to all of them.

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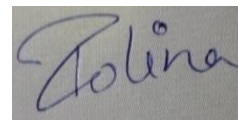
It's my privilege to have **Dr. A. K. Lodi**, Head of department of Education for providing all the necessary facilities and for allowing me to undertake this study.

I extremely grateful to my parents and my sisters for their love and support for my work and helped me whenever I needed. I would like to express my deep sense of gratitude to them for their valuable guidance and constant encouragement.

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M. Ed Student

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Chapter-1

1.1 Introduction

1.2 Need and Significance of the study

1.3 Statement of the Problem

1.4 Operational Definition

1.5 Delimitation of the Problem

1.6 Objective of the Study

1.7 Hypotheses of the Study

Chapter-I

INTRODUCTION

Use of modern technologies in the society requires great changes in education system, including the mission, vision, goals, and methods of educational processes, school equipment and consequently education and training of students and evaluation of learning results and other results of work.

The education is meant for learning, to achieve what we can measure in different ways. The true goal of education is not learning, real goal of education, which is “BECOMING”; i.e. becoming a good, capable and flexible person, who will help make the world a better place.

“Excellence is never an accident. It is always the result of high intension, sincere effort, and intelligent execution, it represents the wise choice of many alternatives- choice, not chance, determines your destiny.”- Aristotle

According to this definition if Aristotle is correct, then in academic we can use assistance as a possible way for practicing. Assessment of modern technologies is helpful for designing tools for specific uses. The best use of technologies is when their capabilities align with our advising goals. The use of modern technologies intentionally can be categories in two parts i.e, service and learning (Steele, 2014). Modern technology should be aligned with student learning.

When teacher or advisors use appropriate technologies to help students learning, it results learning of students digitally stored in relation to specific learning outcome. Use of technologies in an institution by students or teachers or administration makes teaching learning process more easy.

Assessment of modern technologies is the solid resource in the modern education institution. Continued advances in technology will expand the use of ongoing, formative

and embedded assessments that are less disruptive and more useful for improving teaching and learning. Assessment of modern technologies also ensures that all students have the best opportunity to explore and demonstrate their knowledge and skills increasingly focus on real-world skills and complex demonstrations of understanding.

For further understanding the assessment of modern technologies in secondary schools some points are as follows:

- **To examine as to the condition and situation in various schools-**

A primary purpose for the use of modern technologies in schools is to enhance students learning. Has technology been successful in helping students learn more effectively and efficiently? Much research is done on this question, but the answer is for certain.

During the first half of the twentieth century, *transfer-of-learning* theories were popular among classroom teachers. According to these theories the teacher used to transfer the teacher's knowledge and textbook content to the students mind and through periodic examinations.

Many constructivists were critical for the use of computer in schools but some recognized computer as ally and with constructive benefits. The computer based programs are use to promote higher-level thinking and encourage collaborative learning in schools.

- **For the development and reinforcement of the mind of pupil towards educational technology-**

Some educational technologies like- radio, instructional television, overhead projectors, computers and other instructional media are used to support and enhance the teacher's role as instructor. Teacher support plays a great role as an instructor to promote educational technologies as part of school curriculum. Learning about educational technologies acquires great skills and provide students tools for functioning effectively in modern society. Technologies have enriched the classroom practices and resourceful for the teachers also. However, rather than challenging traditional classroom practices,

educational technologies are being use to maintain traditional practices. The culture of schooling, with teachers in charge of instruction before a class of students, has remained relatively constant.

- **Educating and informing the schools and concerned authorities about the use of educational technologies-**

Whatever learning theories a teacher may embrace, many modern technologies exists to enhance instruction and to support students learning in schools. Authorities may greatly vary in the use of modern technologies but selected media are used to promote effective learning and instructional goals.

Following are the few examples of modern technologies being used to support four goals: building student capacity for research, making student capacity inquiry more realistic, enabling students to present information in appealing forms, and offering students access to learning resources within and beyond the schools.

- **Student research.** Students have to rely upon local school libraries and printed reference materials to research topics. Now, however, modern technologies provide access to digital version of references and worldwide libraries. It also provides digital images, videos encyclopedias and links to websites where students access tools. Through modern technologies students can gain access to a wide variety of primary and secondary sources, including government documents, photographs and diaries.
- **Student inquiry.** Science students collect precise data and chemical reactions. Graphing calculators, spreadsheets and graphing software provide mathematics students with the ability to visualize difficult mathematical concepts. In social sciences, electronic communication tools allow students to communicate with their peers from different places. The art students can explore images of original artwork or musical compositions.

Authentic student inquiry extends beyond data collection. It also provides opportunity for students to investigate questions or issues that they face in learning. Modern technologies support interactions and increase the probability of prompt responses.

- **Constructing new knowledge.** James Pellegrino and Janice Altman (1997) believe the penultimate use of technology to move from being knowledge consumers to being knowledge producers. Earlier student inquiries usually take the form of printed reports or oral presentations. With modern technologies, students can present their original data or newly interpreted data through integrating digital videos, audios, and text into word-processed documents, multimedia presentations, or web documents. Students can demonstrate their new knowledge and capabilities at different platforms (local, state, national and international media fairs). Student-generated projects cannot be illustrated or demonstrated through a traditional paper or research report at different platforms. However, modern technology tools provided to the students gives them way to express their knowledge in a more interesting manner.

Students who have physical or learning disabilities can use a variety of assistive technologies in order to be an active member of a mainstreamed class. Handheld modern technologies and specialized tools allow students with learning disabilities to function in traditional classroom by helping them to organize thoughts, structure writing, and manage time. Modern technology also provide alternative forms of assessment for disabled students, including digital portfolios that electronically capture the accomplishments of students who are not able to complete traditional assessments.

1.2 Need and Significance of the Study:

Understanding what students know, and what they don't know, is core of effective learning. If pupils attempt task that are too difficult, they get frustrated and fail in a same way, if they are assigned task that are too easy, they are unlikely to progress as they

should. Accurate information about a student's current level of understanding is therefore, crucial to ensure that all pupils achieve their full potential.

Modern technologies can be used as assessment to track student's progress over time. Technology based learning provides increased flexibility which suits best their individual learning style and needs. Educational technologies allow teachers to assess student's comprehension in the moment of learning, with real time assessment and instant polling. It also involves automated feedback to help students with written assignments.

Every teacher knows that emotion has a huge impact on the overall learning experience, but understanding the varying emotional needs of pupils can prove difficult. Technology is being used to help teachers consider the emotional impact of their learning activities, assessment and teaching methods. Audio and video tools can be used by students to create presentations. In doing this, not only will pupils consolidate their learning in a medium that is familiar to them, but they will also produce a valuable learning resource for other students.

Most teachers and students have come to understand the benefits of technology for assessment. But technology-enabled assessment can be used for more than just tracking results and discipline knowledge. By combining data with learning analytics, technology also offers great promise when it comes to helping pupils to learn through assessment.

1.3 Statement of the Problem-

The problem is stated as "A Study of the Assessment of Modern Technologies in Secondary Schools of Gorakhpur".

1.4 Operational Definitions of key Terms-

In this study researcher want to know the Assessment of modern technologies in secondary schools.

Assessment: In this study assessment, means availability and usability of modern technologies in secondary schools.

Modern Technologies: Technology is the collection of techniques, skills, methods, processes and tools used in the production of services or in the accomplishment of objectives.

Availability: The opportunity at a micro or macro level to materially access technology at reasonable price at schools.

Usability: Usability is part of the broader term “user experience” and refers to the ease of access and/ or use of a product or website.

1.5 Objectives of the study-

- To investigate the availability of modern technologies among secondary school students.
- To investigate the usability of modern technologies among secondary school students.
- To explore whether secondary schools are well equipped for the effective use of modern technologies.

1.6 Hypotheses of the study-

- There is no significance difference between the availability of modern technologies in ICSE and CBSE boards of secondary schools.
- There is no significance difference between the usability of modern technologies in ICSE and CBSE boards of secondary schools.
- There is no significance difference between the application of modern technologies in 7th and 8th standard of secondary schools.
- There is no significance difference between the technology assessment in ICSE and CBSE boards of secondary schools.

1.7 Delimitation of the study-

This study has vast area. It is not possible to study the whole population in limited time and resources. Researcher selects only secondary school students of different schools of Gorakhpur city. The study is limited to the assessment of modern technologies in secondary schools which is very important for the students. This study is carried for the students of secondary schools to make them aware of modern technologies and have progressive learning. And all learners deserve assessments that better reflect what they know and are able to do with that knowledge.

Chapter-2

Review of related Literatures

Chapter- II

Review of Related Literature

A literature review is a comprehensive summary of previous research on a topic. The literature review surveys scholarly articles, books, and other sources relevant to a particular area of research. The review should enumerate, describe, summarize, objectively evaluate and clarify this previous research. It should give a theoretical base for the research and help you (the author) determine the nature of your research. The literature review acknowledges the work has been well conceived. It is assumed that by mentioning a previous work in the field of study, that the author has read, evaluated, and assimilated that work into the work at hand.

A literature review creates a “landscape” for the reader, giving her or him a full understanding of the developments in the field. This landscape informs the leader that the author has indeed assimilated all (or the vast majority of) previous, significant works in the field into her or his research. According to Walter R. Borge, “the literature in any field forms the foundation upon which all future will be built.”

In writing the literature review, the purpose is to convey to the reader what knowledge and ideas have been establish on a topic, and what their strengths and weaknesses are. The literature review must be defined by a guiding concept (e.g. your research objectives, the problem or issue you are discussing, or your argumentative thesis). It is not just a descriptive list of the material available, or a set of summaries.

Paul Jen-Hwa Hu, Theodore HK Clark, Will W Ma (2003) has conducted the study on Examining technology acceptance by school teachers: a longitudinal study. This study examined public school teachers’ technology acceptance decision- making by using a research model that was based on key findings from relevant prior research and important characteristics of the targeted user acceptance phenomenon. The model was longitudinally tested using responses from more than 130 teachers program on Microsoft

PowerPoint, a common but important classroom presentation technology. In addition to identifying key acceptance researchers examined plausible changes in acceptance drivers over the course of the training, including their influence patterns and magnitudes. Overall, the model showed a reasonably good fit with the data and exhibited satisfactory explanatory power, based on the responses collected from training commencement and completion. The findings suggest a highly prominent and significant core influence path from job relevance to perceived usefulness and then technology acceptance. Analysis of data collected at the beginning and the end of the training support most of the hypothesis and sheds light on plausible changes in their influence overtime. Specifically, teachers appear to consider a rich set of factors in initial acceptance but concentrate on fundamental determinants (e.g. perceived usefulness and perceived ease of use) in their continued acceptance.

Satish Jayachandra, Subhash Sharma, Peter Kaufman, Pushkala Raman (2005), has conducted study on the role of relational information processes and technology use in customer relationship management. In this study authors conceptualize and measure relational information processes, or organizational routines that are critical for customer relationship management (CRM). The authors examine the key drivers and outcome of relational information processes and the role of technology in implementing CRM using data collected from a diverse sample of firms. The results show that relational information process plays a vital role in enhancing an organization's customer relationship performance. By moderating the influence of relational information processes on customer relationship performance, technology used for CRM performs an important and supportive role. The study provides insights into why the use of CRM technology might not always deliver the expected customer relationship performance outcome.

Bauer et al. (2005) stated in their study 'Towards technology integration in schools' that although teachers were having sufficient skills, were innovative and easily overcome obstacle, they did not integrate technology consistently both as a teaching and learning

tool. Reasons being outdated hardware, lack of appropriate software, technical difficulties and student skills levels. The study found that professional development has a significant influence on how well ICT is embraced in the classroom. This implies that teachers training programmes often focus more basic skills and less on the integrated use of ICT in teaching. Despite the numerous plans to use ICT in schools, teachers have received little training in this area in their educational programs.

Jhurree (2005) in his study Technology integration in education in developing countries reported that education reform is occurring throughout the world and one of its tenets is the introduction and integration of ICTs in the education system. The successful integration of ICTs into the classroom warrants careful planning and depends largely on how well policy makers understand and appreciate the dynamics of such integration. Integration of ICTs in education has been a contentious issue he claims some people argue that technology will change the educational landscape forever and in ways that will create a dramatic increase in the performance of learners.

Kozma (2005) have demonstrated that ICT can help deepen students' content knowledge, engage them in constructing their own knowledge, and support the development of 43 complex thinking skills. He reported that ICT alone cannot create this kind of teaching and learning environment. Teachers must know how to structure lessons, select resources, guide activities, and support this learning process; many traditionally-trained teachers are not prepared to take on these tasks.

Peansupap et al. (2005) conducted study on 'Factors enabling information and communication technology diffusion'. They found that lack of ICT skills as a key barrier to adopting and using ICT applications in Australian construction organizations. They indicated that the failure of ICT change derives from the traditional beliefs of managers and ICT experts that technology is a magic bullet and so neglect role of people in any change management task. Solving technical issues can minimize user resistance to

technological innovation and thus, ICT implementation success is often realized by managers who understand the management of technological change. Thus, if teachers perceive ICT as a beneficial tool, compatible with their current activities, easy to use and have observable outcomes, they could demonstrate positive attitude towards ICT. This can positively influence ICT Implementation in institutions of higher learning.

UNESCO (2005) reported that teachers, professors, technical and administrative staff must be given training that enables them to integrate new information and communication technologies into their teaching programs. The lack of technical skills of maintaining the functionality of computers confused teachers to integrate ICT in the classroom.

Akankwasa (2006) conducted study on ‘Problems affecting the levels of computer use for instructional purposes by technology teachers in government schools’. He found out that although many teachers share beliefs that educational technology could promote learning and that the use of ICT is desirable, they are reluctant to use educational ICT because of insufficient support and resources.

Albirini (2006) stated that technology competence comprises not only technology knowledge but also the skills and experience essential to put them into use. Technology competency allows the teachers to turn into most efficient individuals in dealing with daily tasks such as to communicate with the students’ parents; to keep records; to do research in their option domain; and to prepare presentations. Computer competence, therefore, can be observed in terms of teacher beliefs concerning their knowledge, basic skill, and capability of performing essential functions using the computer.

Also he reported that computer competence refers to educators’ beliefs about their computer knowledge and skills. Computers are an essential part of many work places and employers need both men and women with computers skills. Although some come to the

job with computer related education, many workers need training or retraining to keep up with new computer hard ware or software.

International Association for the Evaluation of Educational Achievement (2006) held its Second Information Technology in Education Study, an international comparative study of pedagogy and ICT use in schools in 22 countries. The study focused on the role of ICT in teaching and learning in mathematics and science classes, and examined the extent to which practices conducive to the development of “21st century skills” were present, in comparison to traditionally important practices. The study found that the impact of ICT use on students was highly dependent on the teaching approaches adopted.

Greater student gains in 21st century skills were reported by teachers who provided more student centered guidance and feedback and who engaged more frequently in advising students on group work and enquiry projects. On the other hand, the study found that higher levels of reported ICT usage did not necessarily equate with higher levels of learning gains. No significant correlation was found between using ICT in traditional instructional activities and perceived students’ learning outcomes.

Munyantware (2006) in his study ‘Problems affecting teachers’ adoption of technology in classrooms among science and mathematics teachers in Kisoro District’, reported that in addition to social support from colleagues, perceived support from the school influences teachers adoption decision. The study suggested that continuous support to teachers gives them confidence in using computers in teaching their relevant courses in institutions of higher learning.

Aryatuha (2007) studied on ‘Relationship between computerization and organizational effectiveness’. He found that the availability of computer hardware and software should be accompanied with training of the users and constant technical support. Without this,

even though high quality hardware and software are available, they could be wasted or remain underutilized by the users.

Cox et al. (2007) conducted study on what factors support or prevent teachers from using ICT in their classrooms? The researchers argue that decades after the introduction of ICT into classrooms, there were unanswered questions about the impact of technology on students' learning, and the manner by which it affects simple and complex learning tasks. In relation to the outcomes and recommendations for their study, they highlight the absence of rigorous studies as impacting:

- (a) Government policies;
- (b) Teacher education programs;
- (c) Advancing national curricula;
- (d) Designing or reforming classroom implementation, and
- (e) Analyzing costs and benefits.

Farrell (2007) conducted study on Survey of ICT and education in Africa. He found that, though the Faculty of Computing and Information Technology at Makerere University trains staff in e-learning and support e-learning in the whole university, comparatively few teachers have the skills to make pedagogical use of ICT for teaching across the curriculum. This could be due to inadequate ICT training skills, lack of time and negative attitude by teachers towards ICT implementation.

Fleming et al. (2007) studied on 'Predicting preservice teacher competence in computer technology, modeling and application in training environments'. They surveyed 79 pre-service teachers on their training experience and computer technology skills. Results suggest that the more extensively pre-service teachers observe computer technology being used and the more they use ICT in and out of the student teaching classroom, the more likely they were to report competence in the computer technology skills.

Hennessey et al. (2007) studied on ‘Teacher perspectives on integrating ICT into subject teaching, commitments, constraints, and caution and change’. They examined pedagogical approaches to use ICT tools such as multimedia simulations, data logging tools, and interactive whiteboards, and the means by which they may be adapted to the cognitive and structuring resources available in the classroom setting. The researchers found that teachers were moving away from only using practical experiments towards “What if” explorations where the outcomes of ICT-based experiments can be immediately accessed; for example through the use of simulations to demonstrate scientific concepts and physical processes; thereby bridging the gap between scientific and students’ informal knowledge. ICT was also integrated with other practical activities to support incremental knowledge building, consolidation, and application.

Hsin-Kai et al. (2007) in a study ‘Factors effecting teachers adoption of technology in classroom in Taiwan’ found that although many teachers share beliefs that educational technology could promote learning and that the use of technology is desirable, they are reluctant to use computers (ICT) because of insufficient support and resources provided by schools. He also reported that teachers’ technological skills (e.g. technology proficiency and computer literacy) are critical for successful implementation of ICT in the classroom. Teachers should understand the enabling conditions of certain technologies in order to engage students in ICT-based learning activities successfully. Teachers who have lower ICT proficiency are usually not willing and have less confidence to use ICT for teaching. Teachers who have strong engagement towards their own professional development are more motivated to computers.

Sife et al (2007) reported that administrative support is critical to the successful integration of ICTs into teaching and learning processes. It can be argued that administrators can provide the conditions that are needed, such as putting in place an ICT

policy, incentives and resources. He stated that for the adoption of ICTs to be effective and sustainable, administrators themselves must be competent in the use of the technology, and they must have a broad understanding of the technical, pedagogical, administrative, financial, and social dimensions of ICTs in education.

Malcolm et al. (2008) reported that lack of professional development programs for teachers to upgrade their skills on emerging technologies is a barrier to ICT implementation administrators.

Yang (2008) in a case study ‘Examining university students and academic understanding of ICT in higher education at Curtin University of technology’ reported that university teachers who received support from administrators had a high commitment to the adoption of ICT for teaching and learning. Data in the study suggested that the adoption of ICT in teaching and learning would be promoted by greater support of the change at the management level of the University. A crucial factor contributing to the promotion of the innovation is the availability of infrastructure resources: hardware, in terms of the number of computers in the school available for students and teachers for educational purposes, and the quality and functioning of equipment (speed of processors, peripherals and access to the internet) as well as available software. However, availability of ICT alone is insufficient and must be accompanied by technical as well as pedagogical support. He also reported that lack of technical support as one of the major barriers that resulted in computers being underutilized in the classes. Teachers do not use computers in teaching when they are not sure where to turn for help in case something goes wrong.

Priscilla et al. (2008) conducted study on ‘Factors that could possibly influence the use of laptops among educators’. They reported that guidance from a head of department is very important in encouraging the development of electronic lesson materials to encourage computer use for the specific subject in the teaching-learning environment.

The study found out that the success of integrating ICT into the teaching-learning interaction among school teachers depends on the support provided by the principal of the school.

Robin H Kay, Sharon Loverock (2008), has conducted study on Assessing emotion related to learning new software: The computer emotion scale. The purpose of this study was to develop a reliable, valid scale to assess emotions while learning with computers. Four emotions (anger, anxiety, happiness, and sadness), selected after a detailed review of the research, were evaluated. Internally estimates were acceptable. Construct validity was confirmed by an exploratory factor analysis. Convergent validity was supported by strong correlations among emotions and affective attitude, but not cognitive and behavioral attitudes. Finally, predictive validity was corroborated by consistent and significant correlation among emotion, computer knowledge, and use.

Abdi et al. (2009) conducted survey research ‘The utilization and integration of ICT in chemistry teaching in Iranian high schools’. They found that in general they highly need to change chemistry curriculum using ICT and they had very positive views toward ICT and comments were effective for changing the learning environment.

Afshari et al. (2009) studied on ‘Factors effecting teachers’ use of information and communication technology policy for education’. They stated that schools should work to convince ICT staff on how ICT integration in classrooms is very important. Ministry of Education and Sports should encourage Schools to purchase highly reliable technologies; improve systems for checking and maintaining ICTs in the classroom. This could be done by creating new approaches (including staff training) to guarantee that extremely rapid responses are made to breakdowns. They reported that with information technology support, teachers are able to access school network, internet and computer accessories (printer, digital camera, data projector, large TV screen, scanner and video camera). They

also reported that as beginners of computer use, teachers need technical training support to assist them in teaching-learning process when they face constraints whereas for competent teachers, they are eager to share their expertise and provide technology support to their colleagues. Thus, lack of technical knowledge of maintaining the functionality of computers confused teachers to integrate ICT in the classroom. They found the effective use of computers by teachers depends not only on their attitudes, but also on the training they have received Teachers competence presupposes: positive attitudes to ICT, understanding of educational potential of ICT, ability to use ICT effectively in the curriculum and ability to manage ICT use in the classroom.

Bahr (2009) in his study ‘Technological barriers to learning’ found that the complex ICT environments may adversely impact on student learning. Learning is enhanced when integrating pedagogies are employed to soften the sometimes high-load information environments of ICT. Further, a framework for ICT in education needs to consider the professional capacities of teachers in their differing abilities to effectively design and integrate technologies for learning.

Beauchamp et al. (2009) conducted research on ‘Pupils’ attitudes towards school science as they transfer from an ICT-rich primary school to a secondary school with fewer ICT resources’. They studied a group of science students from a technology-rich primary school who moved to a less ICT-oriented secondary school in rural UK. They found that the lack of ICT in the secondary school caused some frustration; however, the group remained predominantly enthusiastic about science. The students particularly enjoyed the practical aspects of science lessons, something that they had not experienced in the primary school, and which they reported compensated for the relative lack of ICT in science teaching.

Granić et al. (2009) studied on ‘Design, implementation and validation of a Europe-wide pedagogical framework for e-learning’. The study was pedagogical framework for online learning in secondary schools from static e-learning and mobile (m-learning) approaches. They found that successful integration required administrative support, adequate resources and appropriate continuing professional development; however, with experience, the teachers’ knowledge improved and their opinion of the program’s effectiveness increased. The researchers note that effective implementation of the ICT framework offered scope for both collaborative and autonomous learning which improved teaching and learning performance in the Europe-wide network of schools.

Park et al. (2009) investigated on ‘ICT in science education: A quasi-experimental study of achievement, attitudes toward science, and career aspirations of Korean middle school students’. The researchers found some evidence that ICT assists high-achieving students and encourage enrolment in science.

Tiago Oliveria, Maria Fraga Martins (2011) has conducted study on Electronic Journal of Information Systems Evaluation 14(1), 110. In this study, we review theories for adoption models at the firm level used in information systems literature and discuss two prominent models: diffusion on innovation (DOI) theory, and the technology, organization, and environment(TOE) framework. The DOI found that individual characteristics, internal characteristics of organizational structure, and external characteristics of the organization are important antecedents to organizational innovativeness. The TOE framework identifies three aspects of an enterprise’s context that influence the process by which it adopts and implements a technological innovation; technological context, and environmental context. In this study there is a thorough analysis of the TOE framework, analyzing the studies that combine the TOE framework with other theories. The institutional theory helps us to understand the factors that influence the adoption of interorganizational systems (IOSs); it postulates that mimetic,

coercive, and normative institutional pressures existing in an institutionalized environment may influence the organization's predisposition toward an IT-based interorganizational system. It is based on three contexts: perceived benefits, organizational readiness, and external pressure. The analysis of this study takes into account the empirical literature, and the difference between independent and dependent variables.

Wolcott et al. (2011) in their study 'Faculty participation: Motivations, incentives, and rewards' found that intrinsic motives, such as job satisfaction and trying new technology tools and teaching strategies, were the most influential factors in faculty decisions to get involved in online learning. They found that faculty who wanted to participate were least influenced by extrinsic motivations such as monetary support, course release time, and tenure and promotion credit. Furthermore, some universities who did not provide faculty release time to develop online courses have had other staff members do this work, as with instructional designers, multimedia developers, and technology experts.

Young et al. (2012) studied on 'Preparing instructors for quality online instruction'. They found that warned an instructor's online role can be more difficult than one experienced in traditional classrooms. Online instructors were thought to have the extra burden of preparing courses well in advance, constantly facilitating the course, modeling good communication skills, and adjusting courses for the varied needs of students.

Indu Nair, V Mukunda Das (2012) has conducted study on Using Technology Acceptance Model to assess teachers' attitude towards use of technology as teaching tool: A SEM Approach. Only a few studies have evaluated acceptance of such new technologies among teachers. This study is an attempt to understand the attitude of mathematics teachers towards IT as an instructional tool in the state schools of Kerala (India), using the Technology Acceptance Model (TAM) framework. Results suggested that TAM being a robust model can be effectively used in this context too and a good fit

for the proposed model for the data seem to agree about the usefulness of computers in teaching mathematics, but were found not very conversant in using these as teaching tools. This factor leads to the finding of the study showing Teachers' Perceived Ease of Use having significant impact on their perception about Usefulness and Attitude towards use of IT in teaching.

Reid (2013) studied on 'Quality assurance, open and distance learning, and Australian universities'. They found that determined online instructors moved through different phases of their online learning experience, and their needs changed at each stage. Furthermore, considering educational leaders were responsible for the quality of online programs and instruction they also needed to engage in professional development, and experiment with online learning environments, infrastructures, and technologies.

Stavros A Nikou, Anastasios A Economides (2017), has conducted study on Mobile-Based Assessment: Integrating acceptance and motivational factors into a combined model of self-determination theory and technology acceptance. This study is based on mobile-based assessment (MBA) is an alternative or complementary to paper- or computer-based assessment delivery mode. Its successful implementation depends on users' acceptance. However, no study exists exploring the factors that influence students' acceptance of mobile-based assessment. Furthermore, research that combines acceptance with motivational factors is limited. The current study builds on the theoretical framework of the Self-Determination Theory (SDT) of motivation and the Technology Acceptance Model (TAM) and proposes the Mobile Based Assessment – motivational and Acceptance Model (MBA-MAM), a combined model that explains and predicts Behavioral Intention to Use Mobile-Based Assessment. One-Hundred and forty students (N= 140) from European senior-level secondary school participated in mobile-assisted assessment activities and self-reported their perception about MBA afterwards. Structured equation modeling was used to analyze quantitative survey data. The study confirmed the proposed model, explaining and predicting students' intention to use MBA

in terms of both acceptance and motivational (autonomy, competence and relatedness) factors. This study provides a better understanding towards the development of mobile-based assessments by relating acceptance and motivational factors into an integrated model. Implications are discussed within the wider context of mobile learning acceptance research.

Laura A Schindler, Gary J Burkholder, Osama A Morad, Craig Marsh (2017) has conducted study on Computer- based technology and student engagement: a critical review of the literature. This study is based on computer- based technology that has infiltrated many aspects of life and industry, yet there is little understanding of how it can be used to promote student engagement, a concept receiving strong attention in higher education due to its association with a number of positive academic outcomes. This study presents a critical review of the literature from the past 5 years related to how web-conferencing software, blogs, wikis, social networking sites (Facebook and Twitter), and digital games influence student engagement. The researcher prefaced the findings with a substantive overview of student engagement definitions and indicators, which revealed three types of engagement (behavioral, emotional, and cognitive) that informed how the researcher classified articles. Findings of the study suggested that digital games provide the most far-reaching influence across different types of student engagement, followed by web-conferencing and Facebook. Findings regarding wikis, blogs, and Twitter are less conclusive and significantly limited in number of studies conducted within the past 5 years. Overall, the findings provide preliminary support that computer- based technology influences student engagement, however, additional research is needed to confirm and build on these findings. The researcher concluded their article by providing a list of recommendations for practice, with the intent of increasing understanding of how computer-based technology may be purposefully implemented to achieve the greatest gains in student engagement.

Valerie J Shute, S Rahimi (2017) has conducted the study on Journal of Computer Assisted Learning 33(1), 1-19. This study review computer based assessment for learning

(CBAfL), in elementary and secondary education, as a viable way to merge instruction and assessment of students, developing proficiencies. We can see this study by contextualizing our topic relative to summative and formative assessment for presenting the current literature, which can be categorized into the following: (a) supplementary use in classrooms, (b) web-based, and (c) data-driven, continuous CABfL. In this study findings show that using CBAfL in the classroom, via the internet, or embedded in a game, generally enhances learning and other outcomes across a range of content areas (e.g. biology, math, and programming). One conclusion is that feedback, to be most beneficial to learning, should not be overly complex and must be used to be effective. The quality of the assessment (i.e. validity, reliability, and efficiency) is unimpaired by the inclusion of feedback. The possibilities created by advances in the learning sciences, measurement, and technology have paved the way toward new assessment approaches that will support personalized learning and that can accurately measure and support complex competencies.

After reviewing above mentioned studies researcher found that many researches have been performed regarding the Modern Technologies. The uses of modern technologies (computer, smart boards, internet facilities, and applications for helping in academic achievement of students and evaluations for academic achievement of students). But still there are some needs for further research for the Assessment of modern technologies. To contribute to the teaching learning process and enhance the assessment of modern technologies researcher has performed the study in hand.

Chapter-3

3.1 Educational Research

3.2 Population

3.3 Sample and Sample techniques

3.4 Tool for the study

3.5 Collection of data

3.6 Scoring of the Data

3.7 Statistics used in Study

Chapter – III

Design of the Study

The research design refers to the overall strategy that a researcher choose to integrate the different components of the study in a coherent and logical way, therefore ensuring yourself will effectively address the research problem; it constitute the blue print for the collection, measurement, and analysis of data.

The function of a research design is to ensure that the evidence obtained enables you to effectively address the research problem as unambiguously as possible. In research obtaining evidence relevant to the research problem generally entails specifying the type of evidence needed to test a theory, to evaluate a program, or to accurately describe a phenomenon. However, researchers can often begin their investigations far too early, before they have thought critically about what information is required to answer the study's research questions. Without attending to design issues beforehand, the conclusion drawn risk being weak and unconvincing and consequently will fail to adequate address the overall research problem.

Research methodology:-

Educational Research refers to the systematic collection and analysis of data related to the field of education. Research may involve variety of methods. Research may involve various aspects of education including students learning teaching method, teacher training and classroom dynamics. There are several views regarding educational research.

W.S. Munroe and **C.C. Crawford** have named educational research as a method. Other scholars such as **L.V. Redmeyer**, **A.V.H. Mauri**, etc, considered it an attempt. **P.M. Cook** considered it to be a process of discovery and **Travers** considered it as an activity.

Educational research in fact is a method by which knowledge, concept, thinking and views are ordered, new knowledge is revealed, new meaning is attached to the old facts,

solution to the problem is found and ancient mistake views are amended. Educational research is a purposeful, intellectual, proficient, ordered, factual, pure and logical activity. It is unbiased, honest, understandable, just authentic, verifiable and scientific.

In the present study, survey research method is employed. The researcher constructed the tool (questionnaire) to collect the sample which consisted ICSE board and CBSE boards of different standards from secondary schools of Gorakhpur city.

Survey Research: - In a research, a survey is a list of questions aimed at extracting specific data from a particular group of people. Surveys are used to increase knowledge in different fields. Survey research is often used to assess thoughts, opinion, and feelings. Surveys can be specific and limited, or they can have more global, widespread goals.

A survey consists of a predetermined set of questions that is given to a sample. With a representative sample, that is, one that is representative of the larger population of interest, one can compare the attitudes of different populations as well as look for changes in attitude over time. A good sample selection is a key as it allows one to generalize the findings from the sample to the population, which is the whole purpose of survey research.

According to F.N. Kerlinger,

“Survey research is that branch of social scientific investigation that studies large and small populations (or universes) by selecting and studying samples chosen from the population to discover the relative incidence, distribution and inter- relations of sociological and psychological variables.”

Population: -

In a research population is generally a large collection of individuals or objects that is the main focus of a scientific query. In a research population is also known as well- defined collection of individuals or objects to have similar characteristics. However, due to the

large sizes of populations, researcher cannot test every individual in the population because it is too expensive and time- consuming. This is the reason why the researchers rely on sampling techniques.

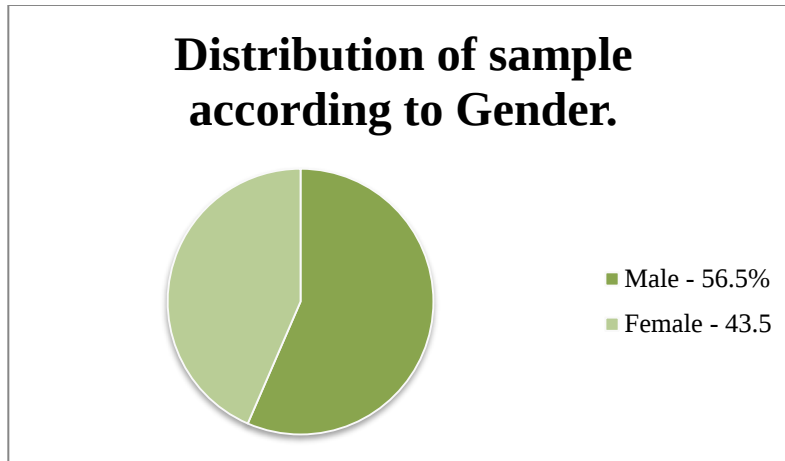
In the present study, the term population refers to class 7th and 8th students belonging to ICSE and CBSE boards of school of Gorakhpur district of U.P. 200 students of class 7th and 8th from different boards were selected as sample of the study.

Sampling: -

A sample is simply a subset of the population. The concept of sample arises from the inability of the researchers to test all the individuals in a given population. The sample must be representative of the population from which it was drawn and it must have good size to warrant statistical analysis.

The main function of the sample is to allow the researcher to conduct the study to individuals from the population so that the results of their study can be used to derive conclusions that will apply to the entire population. It is much like give- and- take process. The population “gives” the sample, and then it “takes” conclusions from the results obtained from the sample.

In the present study, random sampling technique was used to select the subjects from the entire population. The sample of the study comprised of 200 students of Gorakhpur city. Out of 200 students, 50-50 students of 2 different schools of 7th standard of CBSE and ICSE Board and 50-50 students of 2 different schools were of 8th standard of CBSE and ICSE Board. They were administered **Questionnaire for assessment of modern technologies in secondary schools** (Polina Panzy McCarty). Whatever was the highest score among the subject for the study is shown in the design below.

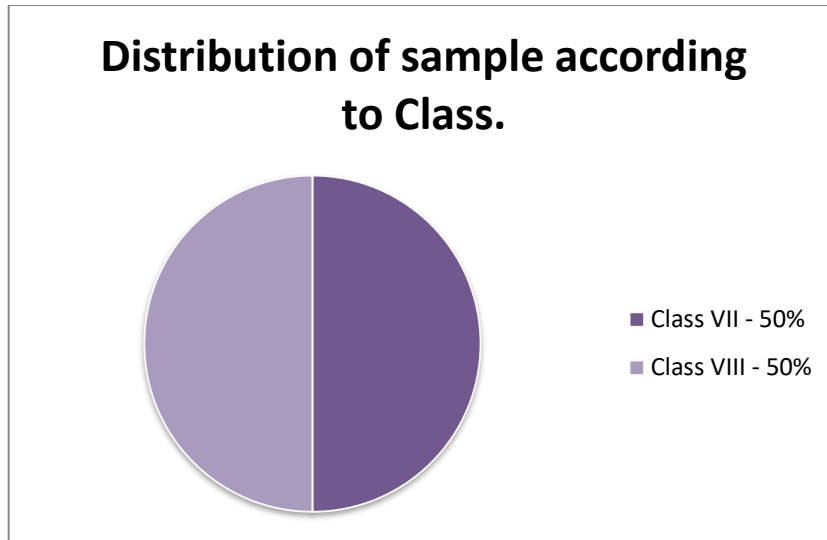


The above figure represents that the Male students are 56.5% and Female students are 43.5% and the total number of students is 200. On the bases of Assessment of modern technologies among secondary schools.

Table 3.1 Distribution of Sample acc. to Gender

Gender	Frequency	Percentage
Male	113	56.5
Female	87	43.5
Total	200	100.0

The above table shows that the frequency of male students is 113 and percent is 56.5% and the frequency of Female students is 87 and percent is 43.5 and total frequency of both male and female students is 200 and percent is 100%. On the bases of Assessment of modern technologies among secondary schools.

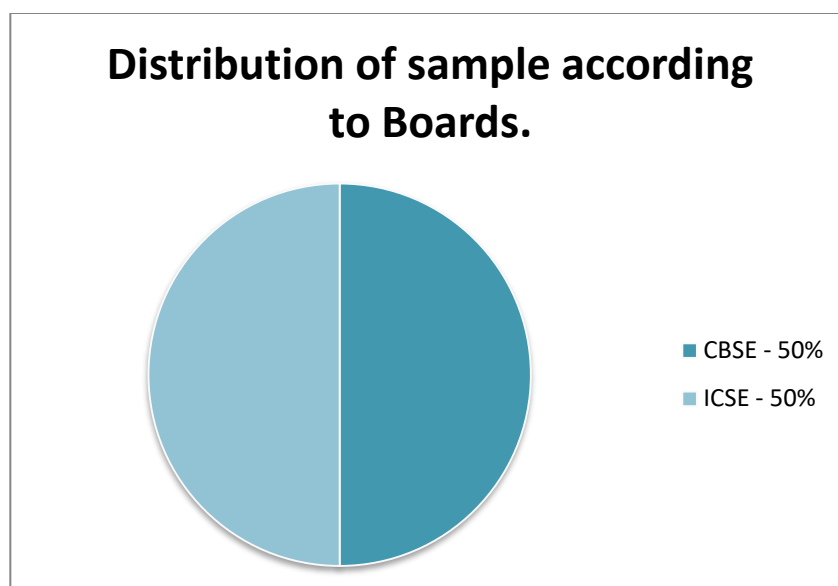


The above diagram represents the percentage of class 7th students is 50% and class 8th students is 50% and total number of students in both the class is 100%. On the bases of Assessment of modern technologies among secondary schools.

Table 3.2 Distribution of Sample acc. to Class

Class	Frequency	Percentage
VII	100	50.0
VIII	100	50.0
Total	200	100.0

The above table shows that the frequency of class 7th students is 100 and the percent is 50% and the frequency of class 8th students is 100 and the percent is 50% and total number of the frequency of both the class is 200 and percent is 100%. On the bases of Assessment of modern technologies among secondary schools.



The above figure represents the assessment of Modern Technologies among secondary schools according to different boards, i.e. CBSE with 50% and ICSE with 50%.

Table 3.3 Distribution of Sample acc. to Board

Board	Frequency	Percentage
CBSE	100	50.0
ICSE	100	50.0
Total	200	100.0

The above table shows that the frequency of different boards of secondary schools. Frequency of CBSE board is 100 and the percentage is 50% and the frequency of ICSE board is 100 and the percentage is 50% regarding the assessment of modern technologies among secondary schools.

Tool of the Study: -

In research, **Tool** is also known as **Data gathering device**, and it is the process that researcher choose for the most appropriate procedures for the research. The tool can be of various types, for example, psychological tests, inventories, observations, checklist,

rating scales, interviews, content analyses, etc.... It helps in analyses and collection of data upon which hypotheses may be tested.

The selection of the tool can be done either ways; one is to construct a tool independently by a researcher for his own study and second is the right selection of standardized tools available in the field of study. Thus in the present study the researcher used non-standardized tool (questionnaire) designed by herself.

“Questionnaire for assessment of modern technologies in secondary schools.”

Construction of tool: -This tool is constructed for the assessment of modern technologies in secondary schools. For the construction of the tool, there are numerous small decisions that were made – about content, wording, format, placement – that can have important consequences for researcher’s entire study. While there’s no one perfect way to accomplish this job, a researcher has lots of advice to offer that might increase her chances of developing a better final product.

First of all, we will see what points should be kept in mind for constructing a questionnaire. There are three areas involved in writing a question:

- determining the question content, scope and purpose
- choosing the response format that researcher use for collecting information from the respondent
- figuring out how to word the question to get at the issue of interest

Collection and Writing of Items: -

Each research is unique, like a small work of art. Each research has its own ebb and flow – its own pace. To the researcher sometimes it looks like a fairly standard, simple, prosaic effort. In collecting data on the above mentioned measures, care was taken of the fact that the subjects have completely understood each questions and response categories clearly. The investigator was required to describe the whole situation in a

most natural way. The investigator freely explained the items and response to the subject in a good manner. Then subject's response was recorded when they understood well to give response. The researcher collected true n honest responses of the subjects in a very cooperative and healthy environment. The questionnaire was distributed to subjects with the general instructions. They were also encouraged to solve their issues or doubts if they had regarding the questionnaire. The subjects in various institutions were supervised by the administration of their representative institutes during the whole process. While administering test it was especially checked that all the subjects had completed the questionnaire along with their bio- data given at the cover page of the questionnaire as per instructions provided. After this the booklets were thoroughly checked, collected and kept. In the end each students and administrator was thanked for their healthy cooperation. Same process was followed in different institution.

Scoring of questionnaire: -

After administering the questionnaire to the entire population i.e. 200 students of different boards of secondary schools of Gorakhpur city (Uttar Pradesh). The next step was to score the responses collected. Score for the answer marked $\sqrt{}$ was given score for different categories; 'Available' was given a weightage of 3, 'Not available' was given 1, 'Don't know' was given 2, 'Regular' was given 3, 'Some times' was given 2, 'Never Used' was given 1, in respect of responses pertaining to positive statements. The score was reversed for the statements that were negative.

Statistical Analyses: -

Statistical Analyses refers to those methods which are used for the collection, interpretation, presentation as well as analyses of data. For the analyses of data

researcher used descriptive and inferential statistics. Researcher used central tendency (Mean), Standard deviation, Standard error of mean, and t-test.

Formula used in Present Study-

$$\text{Mean} = \sum fx / N$$

Where, f= Frequency

X= midpoint

N= No. of samples

$$\text{Standard Deviation} = \sqrt{\frac{\sum fd^2}{N} - \left(\frac{\sum fd}{N}\right)^2} \times C.I.$$

f = Frequency

d= Deviation from Assumed mean

N=No. of sample

C.I. = Class Interval

$$\text{Standard Error of Mean} = \sigma / \sqrt{N}$$

Where, σ = Standard deviation of total population

N = no. of samples

The ‘t’ test – The “t” test is defined as the ratio of the deviation from the mean or other parameter, in a distribution of sample statistics, to the standard error of that distribution (Guilford, 1973).

$$\mathbf{t\text{-}test} = \frac{M_1 - M_2}{\sigma_D}$$

σ_D

M_1 = Mean of the first group

M_2 = Mean of the second group

σ_D = Difference between Standard error of Means

Chapter-4

Interpretation and Discussion

Chapter- IV

Data Analysis, Interpretation and Discussion

Data Interpretation

Data interpretation refers to the implementation of processes through which data is reviewed for the purpose of arriving at an informed conclusion. The interpretation of data assigns a meaning to the information analyzed and determines its signification and implications.

The present chapter deals with the interpretation of data collected. The purpose of data analysis is to reduce data on an intangible and interpretable form so that the result obtained can be examined and interpreted. The data were analyzed based on the objectives and hypothesis, using descriptive and inferential statistics.

Hypothesis-1

There is no significance difference between male and female students of secondary schools using the table on availability of Modern Technologies in secondary schools.

Table 4.1 Statistics for Availability of Modern Technologies according to Gender.

Gender	N	Mean	Std. Deviation	t-value df=198	Significance
Male	113	15.40	3.133	.528	Not Significance at .05 level
Female	87	15.64	3.351		

The table 4.1 shows relevant statistics i.e. mean, standard deviation (SD), and t-ratio of male and female students of secondary schools, in terms of availability of modern technologies in their

respective schools. It is clear that the mean score of secondary school students 113 male students was calculated to be 15.40 with standard deviation 3.133 which is slightly less than the mean score of 87 female secondary school students i.e. 15.64 with standard deviation 3.351. The t-value between male and female students is observed .528 at the 198 degree of freedom.

Here the calculated value of t at degree of freedom 198 is less than the table value at 0.05 level of significant, so this hypothesis is accepted at 0.05 level of significant. It means there is no significance difference between Male and female students of secondary schools students.

The value of 't' is not significant because the male and female students were of the same secondary schools with different classes and boards. The male and female students also have the same availability of modern technologies in their representative secondary schools. The male students are more drawn towards the availability of modern technologies rather than the female students of same schools or classes.

Hypothesis-2

There is no significant difference between the male and female students on usability of Modern Technologies.

Table 4.2 Statistics for Usability of Modern Technologies according to Gender.

Gender	N	Mean	Std. Deviation	t-value df=198	Significance
Male	113	17.67	3.846	.309	Not Significance at .05 level
Female	87	17.83	3.243		

The table 4.2 shows relevant statistics i.e. mean, standard deviation (SD), and t-ratio of male and female students of secondary schools, in terms of usability of modern technologies in their respective schools. It is clear that the mean score of secondary school students 113 male students was calculated to be 17.67 with standard deviation 3.846 which is slightly more than the mean

score of 87 female secondary school students i.e. 17.83 with standard deviation 3.243. The t-value between male and female students is observed .309 at the 198 degree of freedom.

Here the calculated value of t at degree of freedom 198 is less than the table value at 0.05 level of significant, so this hypothesis is accepted at 0.05 level of significant. It means there is no significance difference between Male and female students of secondary schools students on usability.

The value of 't' is not significant because the male and female students were of the same secondary schools with different classes and boards. The male and female students also have the same usability of modern technologies in their representative secondary schools. Male students are more interested in the usability of modern technologies in comparison to the female students of same schools or classes.

Hypothesis-3

There is no significance difference between VII and VIII class students of secondary schools on availability of Modern Technologies in secondary schools.

Table 4.3 Statistics for Availability of Modern Technologies according to class.

Class	N	Mean	Std. Deviation	t-value df=198	Significance
VII	100	15.07	3.721	1.921	Not Significance at .05 level
VIII	100	15.94	2.581		

The table 4.3 shows relevant statistics i.e. mean, standard deviation (SD), and t-ratio of class VII and VIII students of secondary schools. It is clear that the mean score of 100 students of class VII students was calculated to be 15.07 with standard deviation 3.721 which is slightly less than 100 students of class VIII students i.e. 15.94 with standard deviation 2.581. The t-value between the students of class VII and VIII is observed 1.921 at the 198 degree of freedom.

Here the calculated value of t at the degree of freedom 198 is less than the table value at 0.05 level of significant so this hypothesis is accepted at 0.05 level of significant. It means there is no significance difference between students of class VII and VIII of secondary schools using on availability of Modern Technologies in the Secondary Schools.

The value of 't' is not significant because class VII and class VIII students were of the same secondary schools. They have the same availability of modern technologies in their respective schools. Class VII students are more drawn towards the modern technologies rather than class viii students of same school.

Hypothesis-4

There is no significance difference between students of class VII and VIII of secondary schools on usability of Modern Technologies in the Secondary Schools.

Table 4.4 Statistics for Usability of Modern Technologies according to class.

Class	N	Mean	Std. Deviation	t-value df=198	Significance
VII	100	17.70	3.873	.157	Not Significance at .05 level
VIII	100	17.78	3.299		

The table 4.4 shows relevant statistics i.e. mean, standard deviation (SD), and t-ratio of class VII and VIII students of secondary schools. It is clear that the mean score of 100 students of class VII students was calculated to be 17.70 with standard deviation 3.873 which is slightly less than 100 students of class VIII students i.e. 17.78 with standard deviation 3.299. The t-value between the students of class VII and VIII is observed .157 at the 198 degree of freedom.

Here the calculated value of t at the degree of freedom 198 is less than the table value at 0.05 level of significant so this hypothesis is accepted at 0.05 level of significant. It means there is no significance difference between students of class VII and VIII of secondary schools using the table on usability of Modern Technologies in the Secondary Schools.

The value of 't' is not significant because class VII and class VIII students were of the same secondary schools. They have the same usability of modern technologies in their respective schools. Class VII students are more capable of using modern technologies in comparison to class viii students of same school.

Hypothesis-5

There is no significance difference between students of CBSE and ICSE boards of secondary schools on availability of Modern Technologies in the Secondary Schools.

Table 4.5 Statistics for Availability of Modern Technologies according to boards.

Board	N	Mean	Std. Deviation	t-value df=198	Significance
CBSE	100	15.93	2.500	1.876	Not Significance at .05 level
ICSE	100	15.08	3.778		

The table 4.5 shows the relevant statistics i.e. mean, standard deviation (SD), and t-ratio of secondary school students of CBSE and ICSE boards of secondary schools. It is clear that the mean score of attitude of 100 students of CBSE board schools was calculated to be 15.93 with standard deviation 2.500 which is slightly less than 100 students of ICSE board schools i.e. 15.08 with standard deviation 3.778. The t-value between the different boards of secondary schools CBSE and ICSE is observed 1.876 respectively.

Here the calculated value of t at the degree of freedom 198 is less than the table value at 0.05 level of significant, so this hypothesis is accepted at 0.05 level of significant. It means there is no

significance difference between students of CBSE and ICSE boards of secondary schools on availability of Modern Technologies in the Secondary Schools.

The value of 't' is not significant because the students were of different boards of secondary schools. Although the availability of modern technologies is less in CBSE Board and greater in ICSE Boards.

Hypothesis-6

There is no significance difference between students of CBSE and ICSE boards of secondary schools on usability of Modern Technologies in the Secondary Schools.

Table 4.6 Statistics for Usability of Modern Technologies according to boards.

Board	N	Mean	Std. Deviation	t-value df=198	Significance
CBSE	100	17.55	2.858	.748	Not Significance at .05 level
ICSE	100	17.93	4.200		

The table 4.5 shows the relevant statistics i.e. mean, standard deviation (SD), and t-ratio of secondary school students of CBSE and ICSE boards of secondary schools. It is clear that the mean score of attitude of 100 students of CBSE board schools was calculated to be 17.55 with standard deviation 2.858 which is slightly less than 100 students of ICSE board schools i.e. 17.93 with standard deviation 4.200. The t-value between the different boards of secondary schools CBSE and ICSE is observed .748 respectively.

Here the calculated value of t (.748) at the degree of freedom 198 is less than the table value at 0.05 level of significant, so this hypothesis is accepted at 0.05 level of significant. It means there is no significance difference between students of CBSE and ICSE boards of secondary schools using the table on usability of Modern Technologies in the Secondary Schools.

The value of 't' is not significant because the students were of different boards of secondary schools. Although the usability of modern technologies is less in CBSE Board and greater in ICSE Boards.

Discussion:

The study of **Valerie J Shute and S Rahimi** also support the findings of present study similarly as it was conducted in 2017. This study review computer based assessment for learning (CBAfL), in elementary and secondary education, as a viable way to merge instruction and assessment of students, developing proficiencies. In the similar way the present study assessment of modern technologies are helpful for developing proficiencies in education.

Laura A Schindler, Gary J Burkholder, Osama A Morad, Craig Marsh also support the findings of the present study as their study was conducted in the year 2017 on Computer- based technology and student engagement: a critical review of the literature. In the similar way the present study also focus on students engagements through different assessment of modern technologies in secondary schools.

Stavros A Nikou, Anastasios A Economides (2017), has conducted study on Mobile- Based Assessment: Integrating acceptance and motivational factors into a combined model of self-determination theory and technology acceptance. This study is based on its successful implementation depends on users' acceptance. And it is similar to the present study and accepts the findings of the present study as this study focus on the acceptance of technologies at different levels of education which is important for analyzing n evaluation of the progress of the students and also enhances the educational implications through assessing the technologies.

The study of **Miss. Indu Nair and V Mukunda Das** also supports the findings of present study. Their study was conducted in 2012. Although this study was conducted with teachers but it is similar to the present study which was with the students of secondary schools of different boards. Acceptance of technology is important for both the teachers and students through acceptance only assessment of technologies can be easily implicated to education field and for educational administrations also.

The study of **Mr. Bahr** which was conducted in the year 2009 in his study 'Technological barriers to learning' found that the complex ICT environments may adversely impact on student learning. Partially supports the present study in some aspects of the findings.

Chapter-5

5.1 Findings and Results

5.2 Educational Implication of the Study

5.3 Suggestions for further research

Chapter-V

Findings, Educational Implications and Suggestions for further Research

5.1 Findings:

The study found that the assessment of modern technologies among different boards of secondary schools has several benefits to students and teachers. The findings of the present study are as follows:

- There is no significant difference was found in male and female students on availability of Modern technologies in secondary schools.
- There is no significance difference was found in male and female students on usability of Modern technologies in secondary schools.
- There is no significance difference was found among class VII and class VIII students on the availability of modern technologies in their respective schools.
- There is no significance difference was found among class VII and class VIII students on the usability of modern technologies in their respective schools.
- There is no significance difference was found among ICSE board and CBSE board of schools on the availability of modern technologies in their respective schools.
- There is no significance difference was found among ICSE board and CBSE board of schools on the usability of modern technologies in their respective schools.

Overall the study points out that:

- Modern technology aids in improving instructional process and makes it more effective and purposive.
- The application of modern technology improves and preserves the standard of education.
- Modern technologies assist in understanding the nature and structure of teaching process.

Conclusions:

The Administration of any secondary school on assessing of modern technologies in their schools must ensure inclusion of everyone from the beginning to the end of educational programs. Administration in the school system must ensure proper planning for the assessment of modern technologies and find an appropriate model for training as well as use. The hiring full time technology director is recommended to provide the service required for any innovations in secondary schools. Instructors should alter their approach to teaching and handling learners while classroom should adopt the student-centered learning techniques. Students should be allowed to employ technology in their projects in the process of collection and analyzing data. The assessment of modern technology not only benefits the school but also the communities as a whole since new inventions that help in development are likely to be developed using technological expertise. Although technology does not significantly influence the attendance and performance of the at-risk students, it is a substantial boost to the acquisition of relevant skills.

5.2 Educational Implications of the Study:

The finding of the study has various implications in the field of education, educational administration different bodies of educational departments.

The researcher had drawn the following implications of assessment of modern technologies:

- The study found that the assessment of modern technologies in schools has several benefits to learner, teachers and administrating bodies.
- The study found that assessment of modern technologies in schools should not be gender biased. It should be equally beneficial for both the gender.
- The study found that availability and usability of modern technologies must be introduced to the students according to their curriculum. So it may be beneficial for them in an appropriate manner.
- The study found that different boards of secondary school applies assessment of modern technologies in various way and here the authority needs to draw their attention for the better use of modern technologies in their schools in an appropriate manner for the learners and instructors.
- The study found that if the teachers apply the proper use of modern technologies according to the curriculum, it will be more beneficial for the students and teachers.
- The study found that the assessment of modern technologies should not reflect the biasness of the gender or different classes of the particular school or different boards of secondary schools in any city.

Educational implications of the study of Modern Technologies in secondary school in generalized method:

- **Technology has improved student engagement towards education.**

Educational technologies have made learning more interactive and collaborative- and this helps students to be better engaged with course material. For teachers, the possibilities are endless: from using simulation tools to demonstrate the virtual reality as a procedure into classrooms. Students are finding it an effective way to learn complex subjects matter.

- **Technology has expanded classroom boundaries.**

Thanks to technology, the classroom no longer has walls. The learning environment no longer has boundaries. And instruction can be provided by any number of subject matter experts- in addition to the person teaching the course.

- **Technology has encouraged self-paced learning.**

In a traditional classroom, students who were struggling to learn new concepts would quickly fall behind their peers. With online assignments, however, students can advance at their own pace. Those who need more time or extra help can practice outside of class with guided exercises or additional coursework.

- **Technology has promoted innovative teaching techniques.**

Technology changes the way we access information, but also how we're taught that information. The instructor becomes less of a 'sage on stage' and more of a 'guide on the side.' From accessing course materials online to watching video-recorded lectures, technology opens up the possibility for teaching innovation: from collaborative group work to flipped and hybrid classrooms. Instructors can also use classroom response system to assess students' understanding of course material and adjust the pace or content as needed in real time.

Two basic leading principles could change the traditional way of teaching.

The first is the recognition that every child is unique. So teaching is most effective if, it meets the individual needs of the students, and if the responsibility of the learning is basically given to the learners themselves.

The second basic principle is that, collaborative learning is an effective way to organize learning situations.

The assessment of modern technologies in secondary schools used as a tool in the pedagogical teaching and learning environment needs more attention drawn towards. Over past many years, a lot of research has been conducted to ‘prove’ the positive effects of assessing modern technologies on the learning outcome. One can directly or indirectly say that, some teaching strategies do benefit from the use of modern technologies. For the educationalists, these aspects are not surprising: diversity of teaching strategies, students having control of their own learning, and peer-learning and feedback mechanisms which should be optimized to gain maximum outcome. This come to conclusion that assessment of modern technologies in secondary schools may be difficult of challenging but finds the best way for success factors being enabled.

5.3 Suggestions for Further Researches:

Based on the findings it is suggested that:

- A similar study can be conducted with a larger sample for the purpose of generalization.
- A comparative study can be conducted between the different boards of the secondary schools.
- The study can be conducted using different research design.
- A study can be conducted to find out the assessment of modern technologies on larger scale.
- A study can be conducted among different classes of different boards of schools.

- A comparative study can be conducted between secondary schools and primary schools as well as higher educational institutes.
- A study can be conducted to find out that educational department is well equipped with modern technologies.
- Similar study can be done on other secondary schools students.
- Similar study can be done to know the effectiveness of information Technology.
- Present study is done with secondary school students, the next study can be done with the teachers of secondary school with different boards.

Summary

A STUDY OF THE ASSESSMENT OF MODERN TECHNOLOGIES IN SECONDARY SCHOOLS OF GORAKHPUR



Summary

DISSERTATION

**Submitted In Partial Fulfillment of the Requirement for Award of Degree of
Master of Education (M.Ed.)**

Supervisor

Dr. E. Ahmad

Associate Professor (Jr)

Submitted By

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M. Ed IInd Year

**DEPARTMENT OF EDUCATION
INTEGRAL UNIVERSITY LUCKNOW
(2019-2020)**

INTRODUCTION

Use of modern technologies in the society requires great changes in education system, including the mission, vision, goals, and methods of educational processes, school equipment and consequently education and training of students and evaluation of learning results and other results of work.

The education is meant for learning, to achieve what we can measure in different ways. The true goal of education is not learning, real goal of education, which is “BECOMING”; i.e. becoming a good, capable and flexible person, who will help make the world a better place.

“Excellence is never an accident. It is always the result of high intension, sincere effort, and intelligent execution, it represents the wise choice of many alternatives- choice, not chance, determines your destiny.”- Aristotle

According to this definition if Aristotle is correct, then in academic we can use assistance as a possible way for practicing. Assessment of modern technologies is helpful for designing tools for specific uses. The best use of technologies is when their capabilities align with our advising goals. The use of modern technologies intentionally can be categories in two parts i.e, service and learning (Steele, 2014). Modern technology should be aligned with student learning.

When teacher or advisors use appropriate technologies to help students learning, it results learning of students digitally stored in relation to specific learning outcome. Use of technologies in an institution by students or teachers or administration makes teaching learning process more easy.

Assessment of modern technologies is the solid resource in the modern education institution. Continued advances in technology will expand the use of ongoing, formative and embedded assessments that are less disruptive and more useful for improving teaching and learning. Assessment of modern technologies also ensures that all students

have the best opportunity to explore and demonstrate their knowledge and skills increasingly focus on real-world skills and complex demonstrations of understanding.

Need and Significance of the Study:

Understanding what students know, and what they don't know, is core of effective learning. If pupils attempt task that are too difficult, they get frustrated and fail in a same way, if they are assigned task that are too easy, they are unlikely to progress as they should. Accurate information about a student's current level of understanding is therefore, crucial to ensure that all pupils achieve their full potential.

Modern technologies can be used as assessment to track student's progress over time. Technology based learning provides increased flexibility which suits best their individual learning style and needs. Educational technologies allow teachers to assess student's comprehension in the moment of learning, with real time assessment and instant polling. It also involves automated feedback to help students with written assignments.

Every teacher knows that emotion has a huge impact on the overall learning experience, but understanding the varying emotional needs of pupils can prove difficult. Technology is being used to help teachers consider the emotional impact of their learning activities, assessment and teaching methods. Audio and video tools can be used by students to create presentations. In doing this, not only will pupils consolidate their learning in a medium that is familiar to them, but they will also produce a valuable learning resource for other students.

Most teachers and students have come to understand the benefits of technology for assessment. But technology-enabled assessment can be used for more than just tracking results and discipline knowledge. By combining data with learning analytics, technology also offers great promise when it comes to helping pupils to learn through assessment.

Statement of the Problem-

The problem is stated as “A Study of the Assessment of Modern Technologies in Secondary Schools of Gorakhpur”.

Operational Definitions of key Terms-

In this study researcher want to know the Assessment of modern technologies in secondary schools.

Assessment: In this study assessment, means availability and usability of modern technologies in secondary schools.

Modern Technologies: Technology is the collection of techniques, skills, methods, processes and tools used in the production of services or in the accomplishment of objectives.

Availability: The opportunity at a micro or macro level to materially access technology at reasonable price at schools.

Usability: Usability is part of the broader term “user experience” and refers to the ease of access and/ or use of a product or website.

Objectives of the study-

- To investigate the availability of modern technologies among secondary school students.
- To investigate the usability of modern technologies among secondary school students.
- To explore whether secondary schools are well equipped for the effective use of modern technologies.

Hypotheses of the study-

- There is no significance difference between the availability of modern technologies in ICSE and CBSE boards of secondary schools.
- There is no significance difference between the usability of modern technologies in ICSE and CBSE boards of secondary schools.
- There is no significance difference between the application of modern technologies in 7th and 8th standard of secondary schools.
- There is no significance difference between the technology assessment in ICSE and CBSE boards of secondary schools.

Delimitation of the study-

This study has vast area. It is not possible to study the whole population in limited time and resources. Researcher selects only secondary school students of different schools of Lucknow city. The study is limited to the assessment of modern technologies in secondary schools which is very important for the students. This study is carried for the students of secondary schools to make them aware of modern technologies and have progressive learning. And all learners deserve assessments that better reflect what they know and are able to do with that knowledge.

Design of the Study

The research design refers to the overall strategy that a researcher choose to integrate the different components of the study in a coherent and logical way, therefore ensuring yourself will effectively address the research problem; it constitute the blue print for the collection, measurement, and analysis of data.

The function of a research design is to ensure that the evidence obtained enables you to effectively address the research problem as unambiguously as possible. In research obtaining evidence relevant to the research problem generally entails specifying the type of evidence needed to test a theory, to evaluate a program, or to accurately describe a phenomenon. However, researchers can often begin their investigations far too early,

before they have thought critically about what information is required to answer the study's research questions. Without attending to design issues beforehand, the conclusion drawn risk being weak and unconvincing and consequently will fail to adequately address the overall research problem.

Population: -

In a research population is generally a large collection of individuals or objects that is the main focus of a scientific query. In a research population is also known as well-defined collection of individuals or objects to have similar characteristics. However, due to the large sizes of populations, researcher cannot test every individual in the population because it is too expensive and time-consuming. This is the reason why the researchers rely on sampling techniques.

In the present study, the term population refers to class 7th and 8th students belonging to ICSE and CBSE boards of school of Gorakhpur district of U.P. 200 students of class 7th and 8th from different boards were selected as sample of the study.

Sampling: -

In the present study, random sampling technique was used to select the subjects from the entire population. The sample of the study comprised of 200 students of Gorakhpur city. Out of 200 students, 50-50 students of 2 different schools of 7th standard of CBSE and ICSE Board and 50-50 students of 2 different schools were of 8th standard of CBSE and ICSE Board. They were administered **Questionnaire for assessment of modern technologies in secondary schools** (Polina Panzy McCarty). Whatever was the highest score among the subject for the study is shown in the design below.

Tool of the Study: -

In research, **Tool** is also known as **Data gathering device**, and it is the process that researcher choose for the most appropriate procedures for the research. The tool can be of

various types, for example, psychological tests, inventories, observations, checklist, rating scales, interviews, content analyses, etc.... It helps in analyses and collection of data upon which hypotheses may be tested.

The selection of the tool can be done either ways; one is to construct a tool independently by a researcher for his own study and second is the right selection of standardized tools available in the field of study. Thus in the present study the researcher used non-standardized tool (questionnaire) designed by herself.

“Questionnaire for assessment of modern technologies in secondary schools.”

Construction of tool: -This tool is constructed for the assessment of modern technologies in secondary schools. For the construction of the tool, there are numerous small decisions that were made – about content, wording, format, placement – that can have important consequences for researcher’s entire study. While there’s no one perfect way to accomplish this job, a researcher has lots of advice to offer that might increase her chances of developing a better final product.

First of all, we will see what points should be kept in mind for constructing a questionnaire. There are three areas involved in writing a question:

- determining the question content, scope and purpose
- choosing the response format that researcher use for collecting information from the respondent
- figuring out how to word the question to get at the issue of interest

Collection and Writing of Items: -

Each research is unique, like a small work of art. Each research has its own ebb and flow – its own pace. To the researcher sometimes it looks like a fairly standard, simple, prosaic effort. In collecting data on the above mentioned measures, care was taken of the fact that the subjects have completely understood each questions and response

categories clearly. The investigator was required to describe the whole situation in a most natural way. The investigator freely explained the items and response to the subject in a good manner. Then subject's response was recorded when they understood well to give response. The researcher collected true n honest responses of the subjects in a very cooperative and healthy environment. The questionnaire was distributed to subjects with the general instructions. They were also encouraged to solve their issues or doubts if they had regarding the questionnaire. The subjects in various institutions were supervised by the administration of their representative institutes during the whole process. While administering test it was especially checked that all the subjects had completed the questionnaire along with their bio- data given at the cover page of the questionnaire as per instructions provided. After this the booklets were thoroughly checked, collected and kept. In the end each students and administrator was thanked for their healthy cooperation. Same process was followed in different institution.

Scoring of questionnaire: -

After administering the questionnaire to the entire population i.e. 200 students of different boards of secondary schools of Gorakhpur city (Uttar Pradesh). The next step was to score the responses collected. Score for the answer marked $\sqrt{}$ was given score for different categories; 'Available' was given a weightage of 3, 'Not available' was given 1, 'Don't know' was given 2, 'Regular' was given 3, 'Some times' was given 2, 'Never Used' was given 1, in respect of responses pertaining to positive statements. The score was reversed for the statements that were negative.

Statistical Analyses: -

Statistical Analyses refers to those methods which are used for the collection, interpretation, presentation as well as analyses of data. For the analyses of data researcher used descriptive and inferential statistics. Researcher used central tendency (Mean), Standard deviation, Standard error of mean, and t-test.

Formula used in Present Study-

$$\text{Mean} = \sum fx / N$$

Where, f= Frequency

X= midpoint

N= No. of samples

$$\text{Standard Deviation} = \sqrt{\frac{\sum fd^2}{N} - \left(\frac{\sum fd}{N}\right)^2} \times C.I.$$

f = Frequency

d= Deviation from Assumed mean

N=No. of sample

C.I. = Class Interval

$$\text{Standard Error of Mean} = \sigma / \sqrt{N}$$

Where, σ = Standard deviation of total population

N= no. of samples

The ‘t’ test – The “t” test is defined as the ratio of the deviation from the mean or other parameter, in a distribution of sample statistics, to the standard error of that distribution (Guilford, 1973).

$$t\text{-test} = \frac{M_1 - M_2}{\sigma_D}$$

M1= Mean of the first group

M2= Mean of the second group

σ_D = Difference between Standard error of Means

Findings:

The study found that the assessment of modern technologies among different boards of secondary schools has several benefits to students and teachers. The findings of the present study are as follows:

- There is no significant difference was found in male and female students on availability of Modern technologies in secondary schools.
- There is no significance difference was found in male and female students on usability of Modern technologies in secondary schools.
- There is no significance difference was found among class VII and class VIII students on the availability of modern technologies in their respective schools.

- There is no significance difference was found among class VII and class VIII students on the usability of modern technologies in their respective schools.
- There is no significance difference was found among ICSE board and CBSE board of schools on the availability of modern technologies in their respective schools.
- There is no significance difference was found among ICSE board and CBSE board of schools on the usability of modern technologies in their respective schools.

Overall the study points out that:

- Modern technology aids in improving instructional process and makes it more effective and purposive.
- The application of modern technology improves and preserves the standard of education.
- Modern technologies assist in understanding the nature and structure of teaching process.

Conclusions:

The Administration of any secondary school on assessing of modern technologies in their schools must ensure inclusion of everyone from the beginning to the end of educational programs. Administration in the school system must ensure proper planning for the assessment of modern technologies and find an appropriate model for training as well as use. The hiring full time technology director is recommended to provide the service required for any innovations in secondary schools. Instructors should alter their approach to teaching and handling learners while classroom should adopt the student-centered learning techniques. Students should be allowed to employ technology in their projects in the process of collection and analyzing data. The assessment of modern technology not only benefits the school but also the communities as a whole since new inventions that help in development are likely to be developed using technological expertise. Although

technology does not significantly influence the attendance and performance of the at-risk students, it is a substantial boost to the acquisition of relevant skills.

Educational Implications of the Study:

The finding of the study has various implications in the field of education, educational administration different bodies of educational departments.

The researcher had drawn the following implications of assessment of modern technologies:

- The study found that the assessment of modern technologies in schools has several benefits to learner, teachers and administrating bodies.
- The study found that assessment of modern technologies in schools should not be gender biased. It should be equally beneficial for both the gender.
- The study found that availability and usability of modern technologies must be introduced to the students according to their curriculum. So it may be beneficial for them in an appropriate manner.
- The study found that different boards of secondary school applies assessment of modern technologies in various way and here the authority needs to draw their attention for the better use of modern technologies in their schools in an appropriate manner for the learners and instructors.
- The study found that if the teachers apply the proper use of modern technologies according to the curriculum, it will be more beneficial for the students and teachers.
- The study found that the assessment of modern technologies should not reflect the biasness of the gender or different classes of the particular school or different boards of secondary schools in any city.

Educational implications of the study of Modern Technologies in secondary school in generalized method:

- **Technology has improved student engagement towards education.**

Educational technologies have made learning more interactive and collaborative- and this helps students to be better engaged with course material. For teachers, the possibilities are endless: from using simulation tools to demonstrate the virtual reality as a procedure into classrooms. Students are finding it an effective way to learn complex subjects matter.

- **Technology has expanded classroom boundaries.**

Thanks to technology, the classroom no longer has walls. The learning environment no longer has boundaries. And instruction can be provided by any number of subject matter experts- in addition to the person teaching the course.

- **Technology has encouraged self-paced learning.**

In a traditional classroom, students who were struggling to learn new concepts would quickly fall behind their peers. With online assignments, however, students can advance at their own pace. Those who need more time or extra help can practice outside of class with guided exercises or additional coursework.

- **Technology has promoted innovative teaching techniques.**

Technology changes the way we access information, but also how we're taught that information. The instructor becomes less of a 'sage on stage' and more of a 'guide on the side.' From accessing course materials online to watching video-recorded lectures, technology opens up the possibility for teaching innovation: from collaborative group work to flipped and hybrid classrooms. Instructors can also use classroom response system to assess students' understanding of course material and adjust the pace or content as needed in real time.

Two basic leading principles could change the traditional way of teaching.

The first is the recognition that every child is unique. So teaching is most effective if, it meets the individual needs of the students, and if the responsibility of the learning is basically given to the learners themselves.

The second basic principle is that, collaborative learning is an effective way to organize learning situations.

The assessment of modern technologies in secondary schools used as a tool in the pedagogical teaching and learning environment needs more attention drawn towards. Over past many years, a lot of research has been conducted to ‘prove’ the positive effects of assessing modern technologies on the learning outcome. One can directly or indirectly say that, some teaching strategies do benefit from the use of modern technologies. For the educationalists, these aspects are not surprising: diversity of teaching strategies, students having control of their own learning, and peer-learning and feedback mechanisms which should be optimized to gain maximum outcome. This come to conclusion that assessment of modern technologies in secondary schools may be difficult of challenging but finds the best way for success factors being enabled.

Suggestions for Further Researches:

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B. Journals

Akankwasa (2006) conducted study on ‘Problems affecting the levels of computer use for instructional purposes by technology teachers in government schools’.

Albirini (2006) stated that technology competence comprises not only technology knowledge but also the skills and experience essential to put them into use.

Abdi et al. (2009) conducted survey research ‘The utilization and integration of ICT in chemistry teaching in Iranian high schools’.

Afshari et al. (2009) studied on ‘Factors effecting teachers’ use of information and communication technology policy for education’.

Aryatuha (2007) studied on ‘Relationship between computerization and organizational effectiveness’.

Bahr (2009) in his study ‘Technological barriers to learning’ found that the complex ICT environments may adversely impact on student learning.

Beauchamp et al. (2009) conducted research on ‘Pupils’ attitudes towards school science as they transfer from an ICT-rich primary school to a secondary school with fewer ICT resources’.

Bauer et al. (2005) stated in their study ‘Towards technology integration in schools’ that although teachers were having sufficient skills, were innovative and easily overcome obstacle, they did not integrate technology consistently both as a teaching and learning tool.

Cox et al. (2007) conducted study on what factors support or prevent teachers from using ICT in their classrooms? The researchers argue that decades after the introduction of ICT into classrooms, there were unanswered questions about the impact of technology on students’ learning, and the manner by which it affects simple and complex learning tasks.

Farrell (2007) conducted study on Survey of ICT and education in Africa.

Fleming et al. (2007) studied on ‘Predicting preserves teacher competence in computer technology, modeling and application in training environments’.

Granić et al. (2009) studied on ‘Design, implementation and validation of a Europe-wide pedagogical framework for e-learning’.

Hennessey et al. (2007) studied on ‘Teacher perspectives on integrating ICT into subject teaching, commitments, constraints, and caution and change’.

Hsin-Kai et al. (2007) in a study ‘Factors effecting teachers adoption of technology in classroom in Taiwan’ found that although many teachers share beliefs that educational technology could promote learning and that the use of technology is desirable, they are reluctant to use computers (ICT) because of insufficient support and resources provided by schools.

International Association for the Evaluation of Educational Achievement (2006) held its Second Information Technology in Education Study, an international comparative study of pedagogy and ICT use in schools in 22 countries.

Indu Nair, V Mukunda Das (2012) has conducted study on Using Technology Acceptance Model to assess teachers’ attitude towards use of technology as teaching tool: A SEM Approach.

Jhurree (2005) in his study Technology integration in education in developing countries reported that education reform is occurring throughout the world and one of its tenets is the introduction and integration of ICTs in the education system.

Kozma (2005) have demonstrated that ICT can help deepen students’ content knowledge, engage them in constructing their own knowledge, and support the development of 43 complex thinking skills.

Laura A Schindler, Gary J Burkholder, Osama A Morad, Craig Marsh (2017) has conducted study on Computer- based technology and student engagement: a critical review of the literature.

Munyantware (2006) in his study ‘Problems affecting teachers’ adoption of technology in classrooms among science and mathematics teachers in Kisoro District’, reported that in addition to social support from colleagues, perceived support from the school influences teachers adoption decision.

Malcolm et al. (2008) reported that lack of professional development programs for teachers to upgrade their skills on emerging technologies is a barrier to ICT implementation administrators.

Paul Jen-Hwa Hu, Theodore HK Clark, Will W Ma (2003) has conducted the study on Examining technology acceptance by school teachers: a longitudinal study.

Peansupap et al. (2005) conducted study on ‘Factors enabling information and communication technology diffusion’.

Priscilla et al. (2008) conducted study on ‘Factors that could possibly influence the use of laptops among educators’.

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Robin H Kay, Sharon Loverock (2008), has conducted study on Assessing emotion related to learning new software: The computer emotion scale.

Reid (2013) studied on ‘Quality assurance, open and distance learning, and Australian universities’.

Satish Jayachandra, Subhash Sharma, Peter Kaufman, Pushkala Raman (2005), has conducted study on the role of relational information processes and technology use in customer relationship management.

Sife et al (2007) reported that administrative support is critical to the successful integration of ICTs into teaching and learning processes.

Stavros A Nikou, Anastasios A Economides (2017), has conducted study on Mobile- Based Assessment: Integrating acceptance and motivational factors into a combined model of self-determination theory and technology acceptance.

Tiago Oliveria, Maria Fraga Martins (2011) has conducted study on Electronic Journal of Information Systems Evaluation 14(1), 110.

UNESCO (2005) reported that teachers, professors, technical and administrative staff must be given training that enables them to integrate new information and communication technologies into their teaching programs.

Valerie J Shute, S Rahimi (2017) has conducted the study on *Journal of Computer Assisted Learning* 33(1), 1-19.

Wolcott et al. (2011) in their study 'Faculty participation: Motivations, incentives, and rewards' found that intrinsic motives, such as job satisfaction and trying new technology tools and teaching strategies, were the most influential factors in faculty decisions to get involved in online learning.

Yang (2008) in a case study 'Examining university students and academic understanding of ICT in higher education at Curtin University of technology' reported that university teachers who received support from administrators had a high commitment to the adoption of ICT for teaching and learning.

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Appendix

Please fill the following information:-

Date-.....

Student's Name - **Class** -

School Name -

Board -

Questionnaire for assessment of modern technologies in secondary schools.

INSTRUCTIONS

- The purpose is to know about the assessment of modern technologies in your school.
- There is no time limit.
- Mark in appropriate box which you think is correct according to you.
- Your response for each question will be recorded as 6 points alternatives, viz. **Availability (A), Non- Availability (NA), Don't Know (DK), Regularly (R), Sometimes (ST), Never used (NU).**

Choose the Availability of Modern Technologies –

Questions	Availability	Non- Availability	Don't Know
1. For better learning, educational software is available in your school?			
2. For your progress record and evaluation, educational software is available in your school?			
3. Teaching, with multimedia projector is available in your school?			
4. Smart white board, is available for teaching- learning in your school?			
5. In the general, trend of educational quality with time for your own experience, Google classroom is available?			
6. To fulfill, the most important factor of modern technology internet is must. Is it available in your school?			
7. Other modern technologies are also available in your school?			

Choose the Usability of Modern Technologies –

Questions	Regularly	Sometimes	Never Used
1. How often is the usage of modern technologies and web enabled learning management system in your school according to your experience?			
2. How often are you looking into the role of educational technology?			
3. According to you how often do you utilize institutional software?			
4. Multimedia projectors and Smart white boards effects the success of learning management systems?			
5. Educational software contains must have/indispensable components for online learning. How often it is good model to follow?			
6. To what extent the usage of Google classroom learning can be taken for granted as assumed learning?			
7. How often the effectiveness of educational software should improve the course quality?			
8. Usage of modern technologies is the best way to handle skilled diversity in a classroom?			

S.No	Gender	Class	Board	Availability	Usability
1	M	7	CBSE	17	21
2	F	"	"	20	20
3	M	"	"	18	19
4	M	"	"	18	19
5	F	"	"	17	19
6	M	"	"	16	20
7	M	"	"	20	19
8	M	"	"	17	20
9	M	"	"	20	19
10	M	"	"	16	21
11	F	"	"	21	24
12	F	"	"	16	19
13	F	"	"	16	20
14	F	"	"	18	20
15	M	"	"	17	20
16	M	"	"	18	20
17	M	"	"	18	20
18	M	"	"	20	19
19	M	"	"	18	20
20	M	"	"	18	20
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46	M	"	"	9	10
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Thankyou.