THE IMPACT OF TECHNOLOGICAL INTEGRATION IN CLASSROOM LEARNING: A COMPARITIVE ANALYSIS OF TRADITIONAL AND DIGITAL PEDAGOGIES.

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CHAPTER ONE:

INTRODUCTION

TRADITIONAL PEDAGOGY:

Traditional teaching methods have been employed for centuries to impart knowledge and skills. This approach emphasizes direct instruction and a structured learning environment. According to Neil Postman and Charles Weingartner (1976), in their book, 'Teaching as a subversive activity', traditional pedagogy has been described as an approach where 'the teacher talks and the students listen' and 'where the teacher knows everything and the student knows nothing'. As proposed in the 'Banking Model of Education' which was popularized by the Brazilian educator and philosopher Paulo Freire in his book, 'Pedagogy of the oppressed', where education is viewed as a specific body of knowledge that is transmitted from the teacher to the student. In this model, students are considered as empty vessels into which educators must deposit knowledge. It emphasizes teacher centric learning where students are passive absorbers of information and that the purpose of learning is memorization of facts.

There are certain core strategies of traditional teaching, which includes the instructor's role, rote learning, classroom discipline and experiential learning opportunities that contributes to a comprehensive educational approach which in turn meets the needs of students in different subjects and fosters their overall development.

Research into traditional teaching methods emphasizes the pivotal role of instructors as the main providers of knowledge and expertise. Instructors are tasked with delivering organized lectures, clarifying complex concepts, and guiding class discussions to facilitate a seamless learning experience. Studies indicate that the responsibilities of instructors go beyond just sharing information; they also evaluate students' understanding through various assessments, including tests, quizzes, and assignments. These evaluations not only measure student performance but also enable instructors to adapt their teaching strategies to better address the diverse learning needs of their students. Furthermore, research highlights the significance of instructors in fostering an

engaging and supportive educational atmosphere, which nurtures intellectual curiosity and encourages students to delve deeper into the subject matter. Through their active participation and mentorship, instructors play a crucial role in shaping the overall educational journey, providing students with a structured and thorough comprehension of topics, a hallmark of traditional teaching practices.

Additionally, research indicates that rote learning—a traditional educational approach centered on repetition and memorization—plays a vital role in reinforcing knowledge and ensuring the long-term retention of essential facts and concepts. This method is particularly advantageous in fields that require a solid understanding of foundational information, such as mathematics, language learning, and the memorization of historical dates or scientific formulas. Various educational theories suggest that rote learning fosters automatic recall of critical data, which can serve as a foundation for more advanced learning. However, critics argue that an overreliance on rote memorization may hinder students' abilities to engage in critical thinking, problem-solving, and deeper conceptual understanding, as it prioritizes recall over comprehension. Despite these criticisms, research indicates that when rote learning is combined with other instructional strategies—such as active learning and inquiry-based methods—it can significantly improve a student's capacity to process and apply knowledge. Thus, when implemented in a balanced manner, rote learning remains a valuable educational tool, contributing to the establishment of a robust foundational knowledge base that is essential for advanced learning.

Moreover, research underscores the significance of classroom discipline in traditional teaching, emphasizing its crucial role in creating a structured and effective learning environment. Studies suggest that maintaining classroom discipline is vital for reducing distractions, allowing students to focus and engage more thoroughly with the material. This structured approach is essential for maximizing instructional time and ensuring that educational objectives are achieved. Additionally, classroom discipline is linked to the development of important life skills, such as respect for authority, responsibility, time management, and self-control. Various educational studies indicate that these skills not only enhance academic success but also prepare students for future personal and professional challenges.

However, some researchers warn that an excessive focus on discipline may lead to unintended consequences, such as suppressing creativity and individuality

among students. They argue that a strict emphasis on order and compliance could restrict students' abilities to think critically, solve problems creatively, or express themselves uniquely. Nevertheless, research suggests that achieving a balance between maintaining discipline and fostering creativity is beneficial for students, as it provides both structured learning environments and opportunities for independent thought. This equilibrium is considered essential for effective traditional teaching methods, as it promotes cognitive development and personal growth within the classroom setting. In summary, traditional teaching methods, when executed thoughtfully, can create a conducive learning environment that supports both academic achievement and the development of essential life skills.

PEDAGOGICAL INSIGHTS INTO TRADITIONAL TEACHING:

Insights into traditional teaching highlight its strong ties to various educational philosophies and theories. This method, rooted in age-old practices and cultural norms, has remained the prevailing pedagogy in many societies for generations, despite the rise of modern teaching approaches. Its focus on classroom instruction, group interactions, and adherence to established methods provides students with a structured and concentrated learning environment, catering to their diverse needs through organized schedules and extracurricular activities.
The theoretical foundation of traditional teaching is based on educational theories such as behaviorism and cognitivism. Behaviorism emphasizes reinforcement and repetition in learning, while cognitivism focuses on mental processes like attention, memory, and problem-solving. These theories underpin the principles and strategies of traditional teaching, which seeks to create an engaging and comprehensible learning environment by integrating both behaviorist and cognitive principles into a robust pedagogical framework.
From a pedagogical viewpoint, traditional teaching is often compared to modern methods like active and discovery learning. Critics contend that it may not sufficiently meet the varied needs of students, relying on broad methodologies that may not suit all learners. Furthermore, traditional teaching is closely linked to the physical classroom environment and positions the instructor as the main source of knowledge.
This perspective highlights the needs to consider alternative approaches that can better meet the individual needs of students in today’s educational landscape.

DIGITAL PEDAGOGY-

As education moves towards digitalization, technology has influenced much learning and resulted in the development of digital pedagogy which has become a vital part of learning process. Collaborative learning, blended learning, flipped learning, open communication, creativity and innovation are at the heart of education and used pedagogical assumptions based on technological inclination. The modern assumption of education requires an integral aspect of technologically bound and digitally mastered pedagogy.

Devaki (2018), defined digital pedagogy as using digital elements to enhance or change the education experience. Digital pedagogy is not about technology, although digital delivery requires technology, it is about how we teach and how students want to learn facilitated by technology.
Knyazeva (2015), argued that the broader use of ever more advanced ICT (Information and Communications Technology) in learning does not always suggest innovative pedagogical approaches. Digital pedagogy to be applied during the digital era should be a hybrid of traditional pedagogy fertilized by the approaches used for blended and online learning. Antoniou (2020), investigated new educational technologies in formal, informal and non-formal educational environments.
Investigations revealed a need to revisit digital pedagogies to align with new technological capabilities and user needs. Digital pedagogies used to consider integrating technology in education as more than just a tool for learning but as an active part of the pedagogy.

Digital pedagogy integration has a vital role in student-teacher enthusiasm in building productive connections to simulated conditions. The 21st century learners use digital pedagogy approaches to influence their expectations with 24/7 multimedia technologies. Nowadays technology has an effective communication interface with comprehensive co-operation and association (Nehru, 2020).

The emerging educational philosophy, information, theory and critical pedagogy issues restructure learning experiences- the teaching learning process shifts from input-output to outcome-based education. Digital pedagogy ius not about technology but about how teachers want to teach and students want to learn.

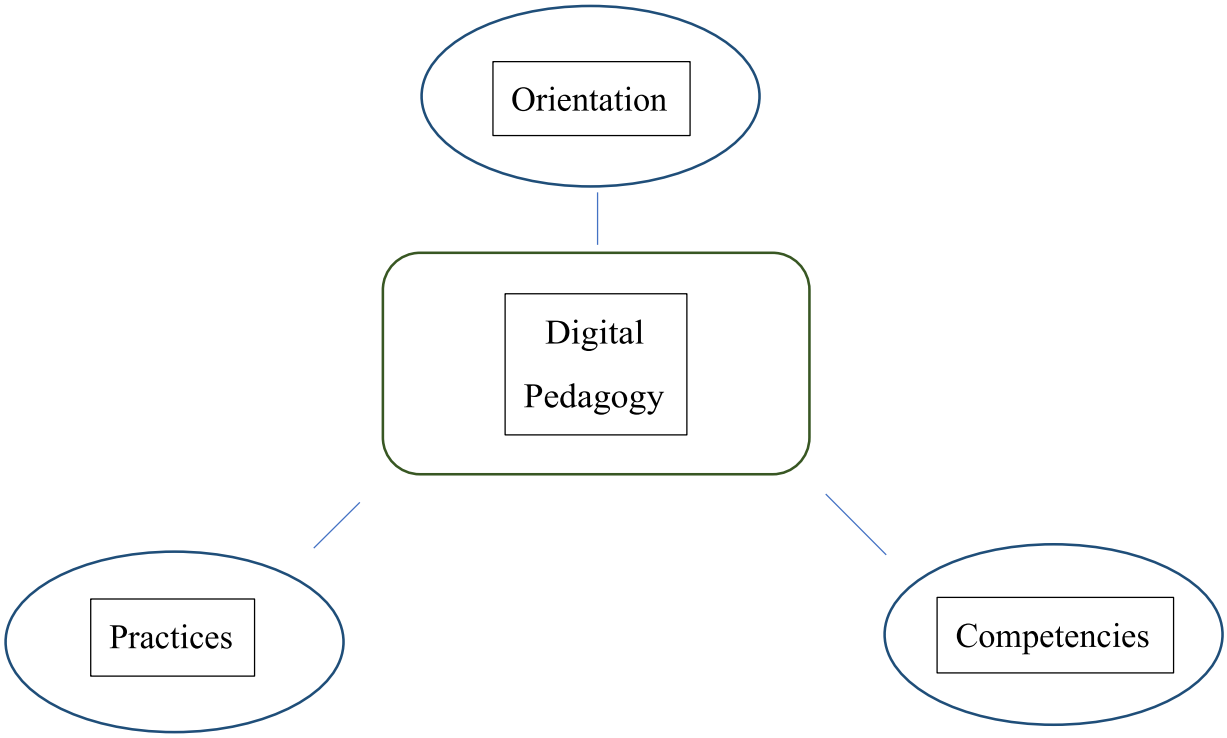
Ideally, blended and online learning should be combined. Problem based learning with ICTs has emerged to prove learning outcomes. The pandemic has heightened interest in digital pedagogies to help student learn. In many cases the pedagogy is student centered and socio constructivist. The use of digital pedagogy enhances student teacher engagement in simulated situation.

Digital pedagogy has various offers in education. The only missing link is the understanding of the level of digital pedagogy among teachers. It is to provide concrete and tangible blueprint to revisit, remodel and recapture the programs necessary for the development of teachers.

Digital pedagogy is a branch of pedagogical science that reveals the essence and regularities of digital education, the role of digitalized educational processes in personal growth and develops practical ways and means of improving their effectiveness. It is also a pedagogical trend related to building the digital economy and digital society. Further digital pedagogy embeds computer based digital technologies in the art of learning, enriching the teaching processes and assessments and builds knowledge through planning the educational system based on problem solving and higher order thinking skills. Furthermore, it provides high quality education using information and communication technologies as a tool for creating new learning opportunities. It organizes a purposeful and systematic activity on human formation using information technologies and the internet (Toktarova & Semenova, 2020).

Digital pedagogy has evolved into three key concepts that shape the modern teaching landscape. First, it encompasses the teacher's perceptions of the learning process, focusing on how individuals learn and how they should be taught and guided through the use of technology. This involves an understanding of how digital tools can enhance learning and counseling. Second, it involves the teacher's ability to engage learners in problem-based activities, fostering active participation and critical thinking through innovative teaching methods. Finally, digital pedagogy emphasizes the teacher’s skill in effectively integrating digital technologies into their instruction, and the impact this integration has on students' academic performance. Together, these concepts highlight the transformative potential of digital pedagogy in enhancing learning outcomes.

Figure 1- The systematic model shown below shows the concept of digital pedagogies-



In this concept, digital pedagogy orientation is the perceived orientation of the teacher on the relative position of information and communications technology in the teaching-learning process. The digital pedagogy practice is the capacity of the teachers to implement teaching learning standards by assessing the extent of alignment of their profession teaching practice. Digital pedagogy competence measures teachers' information, communication and technology skills in the teaching-learning process. Teachers' orientation, practice and competencies provide an overview of how digital pedagogy is present and relevant in the learning process.

INTERRELATIONSHIPS BETWEEN TRADITIONAL AND DIGITAL PEDAGOGIES:

The world is changing constantly and the various domains are also influenced by the change. There is no exemption even in the education domain. The evolution of the digital learning platforms has a huge impact in educational institutions and has eventually put the traditional methods in the back seat. However, there are demands for both technology and traditional learning methods. As a result of this, the art of combining digital learning tools with more traditional classroom face to face teaching gave birth to the term “Blended Learning”.

Blended Learning is not a mere mix of online and face-to-face mode, but it refers to a well-planned combination of meaningful activities in both the modes. The blend demands consideration of several factors, mainly focussing on learning outcomes and the learner-centred instructional environment. Given the emergence of digital technologies and the emerging importance of leveraging technology for teaching-learning at all levels from school to higher education, the NEP (National Policy of Education) 2020 recommends for use of blended models of learning. The NEP-2020 states that while promoting digital learning and education, the importance of face-to-face in-person learning is fully recognized. Blended learning is an educational approach that combines traditional face-to-face instruction with online components, creating a dynamic and interactive learning environment. This method is designed to enhance both teaching and learning experiences by incorporating various features that significantly improve student engagement. Research indicates that one of the primary benefits of blended learning is its ability to merge in-person teaching with digital resources, allowing students to access multimedia content, participate in discussions, and engage in activities that extend beyond the confines of a physical classroom.

The integration of digital platforms in blended learning fosters improved communication between teachers and students, providing more opportunities for personalized interactions. This enables educators to offer timely feedback and tailored support, which can be crucial for student success. Furthermore, blended learning promotes a sense of responsibility among learners, encouraging them to

take ownership of their educational journey. By allowing students to control the pace and direction of their studies, this approach cultivates essential life skills such as self-regulation, time management, and independent study habits.

Flexibility is a hallmark of blended learning, as it allows students to access learning materials at their convenience and adapt their study schedules to fit their personal needs. This adaptability makes education more accessible and accommodating to various lifestyles, ultimately leading to improved learning outcomes. Studies have shown that blended learning can provide a more individualized approach to instruction, catering to diverse learning styles and offering multiple pathways for students to engage with content. As a result, this method often leads to higher academic achievement and enhances the reputation of institutions that adopt it, as it is viewed as a progressive and responsive educational model.

Blended learning also creates a flexible teaching and learning environment that benefits both students and educators. It fosters continuous learning by allowing students to engage in self-directed study and revisit materials as needed, which is particularly valuable for lifelong learning. The incorporation of experiential learning opportunities, such as real-world problem-solving activities, simulations, and hands-on projects, enables students to apply theoretical knowledge in practical contexts, thereby deepening their understanding and retention of course material.

The advantages of blended learning extend beyond academic performance; they include increased learning skills, greater access to information, improved satisfaction, and enhanced learning outcomes. Recent research highlights the transformative potential of blended learning in modern education, particularly its ability to facilitate collaboration at a distance. This allows students to engage in virtual intellectual endeavors, promoting collaborative learning practices that can enrich their educational experience.

Moreover, the flexibility offered by technology-enabled learning removes barriers related to time and location, enabling students to learn anytime and anywhere. This flexibility accommodates various learning modes, speeds, and languages, ensuring that diverse learner needs are met. Blended learning enhances interaction by providing platforms that facilitate greater engagement

between students and instructors, resulting in a more dynamic educational experience.

As digital learning becomes increasingly essential in today's world, blended learning equips students with the skills necessary to navigate and contribute to online communities effectively. It is important to note that blended learning is not merely about integrating technology; it also provides a structured approach to making learning resources and experiences consistent, reliable, and reproducible. This ensures that the learning process remains effective and accessible for all students.

In summary, blended learning represents a comprehensive and adaptable framework that supports student success and institutional growth. By combining the best aspects of traditional teaching with modern technology, blended learning creates an enriching educational environment that prepares students for the challenges of the future while fostering a culture of continuous improvement and engagement. Together, these features position blended learning as a valuable educational model for the future.

ROLE OF TEACHERS IN BLENDED LEARNING ENVIRONMENT-

Blended Learning shifts the teacher's role from knowledge provider to coach and mentor. This shift does not mean that teachers play a passive or less important role in students' education. Quite the contrary—with Blended Learning, teachers can have an even more profound influence and effect on students' learning. Traditionally, classroom instruction has largely been teacherdirected, top-down, and one-size-fits-all, with a bit of differentiation thrown in, but with Blended Learning, it now becomes more student-driven, bottom-up, and customized, with differentiation as a main feature. Much of this new learning dynamic is due to the enhanced role technology plays in instruction. Blended Learning provides an appropriate balance between online instructions, which offers the interactive, tech-based learning, individualized pacing, and privacy that keep students continuously engaged and motivated, and teacher-led instruction, which personalizes the learning experience and adds the human elements of encouragement, compassion, and caring guidance that only teachers can give.

This new learning dynamic benefits students and teachers alike. Giving students permission and space to become active learners who gain knowledge directly lets them assume some control over their learning and helps them develop self-reliance. As more students are working independently, time opens up for teachers to provide face-to-face support and individualized instruction more frequently for more students, effectively improving differentiation. Blended Learning provides teachers with a fuller, more accurate picture of how each student is doing. Blended Learning yields more frequent and more personal teacher interaction with individual students, teachers have the opportunity to deepen and strengthen student/teacher relationships. The trust that comes with close relationships can give teachers insights into students' personal struggles and needs -insights which empower teachers to comfort and coach students through challenges that often serve as obstacles to learning. In conclusion, Blended Learning merges the advantages of online education with the strengths of direct teaching, enabling educators to effectively address student needs without increasing their already heavy workload.

ROLE OF A LEARNER IN THE BLENDED LEARNING ENVIRONMENT-

Research indicates that the learner's role in a blended learning environment is complex and crucial for enhancing the educational experience. Studies reveal that incorporating technology into lessons significantly boosts student interest, leading to greater engagement and enthusiasm for their subjects. This heightened engagement is supported by the ability to access information and resources through digital platforms, which helps students maintain focus for extended periods compared to traditional book-based methods. The interactive nature of these digital tools encourages exploration and research, keeping students actively involved in their learning.

Moreover, eLearning materials promote student autonomy, allowing learners to establish their own educational goals and take charge of their learning journey, a skill applicable across various subjects. Research also shows that blended learning fosters self-advocacy, as students become more self-motivated and accountable for tracking their progress. This sense of autonomy empowers them to seek resources and support when necessary, ultimately aiding them in achieving their learning objectives.

Additionally, blended learning cultivates a sense of ownership over the learning process, with responsibility serving as a strong motivator. The immediate feedback provided in blended learning settings enables teachers to customize their instruction and feedback more effectively, allowing students to progress at their own pace. Studies demonstrate that this flexibility in learning speed, combined with access to advanced resources, equips students with essential real-world skills, preparing them for future challenges. Overall, blended learning creates an environment that supports student engagement, autonomy, and success. These include research capabilities, self-directed learning, better decision-making, and a greater sense of responsibility. Moreover, blended learning improves computer literacy and fosters a self-driving force within students, empowering them to take charge of their education and personal growth. Together, these elements contribute to a learner's success in the blended learning environment, preparing them for both academic and life challenges.

BLENDED LEARNING STRUCTURES IN EDUCATION-

Many factors must be considered when choosing how to blend in-person and online teaching and learning activities. In some cases, most interactions between students and the teacher, as well as the direct delivery of instruction, take place in person in the classroom, while materials and possibly some additional activities are delivered online. In other cases, most of the class activities occur online, with infrequent meetings in person to solve problems and support community building. In some blended arrangements, students may choose which activities to complete online and which to complete in a classroom. Ideally, blends are personalised so individual students have the blend that best fits their age, life circumstances and learning needs. These are called à la carte models. Students choose what to take fully online, what to take fully in person and, when the design is available, blended courses where they choose when to go to in person classes and when to watch videos, download readings and complete assignments online. This kind of personalisation is not always available. Most important is ensuring that students are able to function well as learners with any delivery method, single-mode or blended, even if it is not their preference or the best situation for them. Teachers are valuable coaches for helping students manage in any learning situation; it is up to teachers and learning designers to offer blended activities that best suit the subject, the learners' needs and the curriculum requirements. Not all unique and interesting Blended Learning designs are one-size-fits-all model. Below are seven sample

configurations of Blended Learning activities to consider for Blended Learning teaching situation. These examples of Blended Learning are drawn from higher education but can be shaped to fit any teaching and learning situation.

- BLENDED FACE-TO-FACE CLASS-

  Also sometimes called the "face-to-face driver model," the blended face-to-face class model is based in the classroom, although a significant amount of classroom time has been replaced by online activities. Seat time is required for this model, while online activities are used to supplement the in-person classes; readings, quizzes or other assessments are done online at home. This model allows students and faculty to share more high-value instructional time because class time is used for higher-order learning activities such as discussions and group projects.

- BLENDED ONLINE CLASS -

  Sometimes referred to as the "online driver model," this class is the inverse of the blended face-to-face class. The class is mostly conducted online, but there are some required in-person activities such as lectures or labs.

- THE FLIPPED CLASSROOM-

  The flipped classroom reverses the traditional class structure of listening to a lecture in class and completing homework activities at home. Students in flipped classes watch a short lecture video online and come into the classroom to complete activities such as group work, projects or other exercises. The flipped classroom model can be seen as a sub-model of the blended face-to-face or blended online class.

- THE ROTATION MODEL-

  In this model, students in a course rotate between various modalities, one of which is online learning. There are various sub-models: station rotation, lab rotation and individual rotation. Some of these sub-models are better suited to K–12 education; station rotation, for example, requires students to rotate between stations in the classroom at an instructor's discretion. Others work well on a college campus; the lab rotation model, for example, requires students in a course to rotate among locations on campus (at least one of which is an online learning lab). In the individual rotation model, a student rotates through learning modalities on a customised schedule.

- THE SELF-BLEND MODEL-

  While many of the BL models on this list are at the course level, self-blending is a programme-level model and is familiar to many college students. Learners using this model are enrolled in a school but take online courses in addition to their traditional face-to-face courses. They are not directed by a faculty member and choose which courses they will take online and which they will take in person.

- THE BLENDED MOOC-

  The blended MOOC is a form of flipped classroom using in-person class meetings to supplement a massive open online course. Students access MOOC materials - perhaps from another institution or instructor if the course is openly accessible - outside of class and then come to a class meeting for discussions or in-class activities. In 2012, San Jose State University piloted a blended MOOC using MIT's Circuits and Electronics course, with students taking the MOOC out of class while face-to-face time was used for additional problem solving.

- FLEXIBLE-MODE COURSES-

  Flexible-mode courses offer all instruction in multiple modes - in person and online and students choose how to take their course. An example of this is San Francisco State University's hybrid flexible (Hyflex) model, which offers classroom-based and online options for all or most learning activities, allowing students the ability to choose how they will attend classes: online or in person.

TECHNOLOGY INTEGRATION IN PRIVATE AND GOVERNMENT SCHOOLS IN INDIA

The integration of technology in Indian education has seen significant strides over the past decade, especially with the National Education Policy (NEP) 2020 emphasizing the need for digital transformation. However, a digital divide exists between private and government schools, with variations in infrastructure, access to resources, and the effectiveness of digital education. This report evaluates technology integration in these schools, presenting scientific data to highlight disparities and developments in this sector.

In urban India, private schools have increasingly adopted digital technologies, capitalizing on their financial resources to incorporate advanced tools into their educational frameworks. A notable advancement in this sector is the widespread implementation of smart classrooms, with around 85% of private institutions utilizing digital whiteboards and multimedia tools to foster an interactive and engaging learning atmosphere. These smart classrooms enhance the teaching process by integrating videos, animations, and interactive exercises, which simplify complex concepts and make learning more accessible. Furthermore, nearly 90% of private schools benefit from stable internet connectivity, enabling both students and teachers to effortlessly access online educational resources, conduct research, and engage in virtual learning experiences. This robust internet access also supports hybrid and remote learning models, ensuring educational continuity beyond the traditional classroom setting.

Additionally, approximately 65% of private schools have adopted Learning Management Systems (LMS), which streamline administrative tasks, enhance communication between teachers and students, and provide personalized learning paths tailored to individual needs. These LMS platforms allow schools to monitor student progress, conduct assessments, and deliver real-time feedback, thereby improving overall academic performance. Beyond structured systems, private schools actively promote the use of educational applications and platforms such as BYJU's, Khan Academy, and Google Classroom. These resources enable students to interact with engaging content, access video lectures, and complete practice exercises outside of conventional classroom environments. Such digital tools not only supplement traditional teaching but also encourage self-paced learning, critical thinking, and technological literacy, equipping students for a rapidly changing digital landscape.

In contrast, government schools in India face significant hurdles in integrating technology, particularly in rural areas where infrastructure and access to digital tools are severely limited. While about 30% of government schools in urban and semi-urban regions have access to smart classroom technology, this figure plummets to less than 10% in rural areas, underscoring the digital divide. Internet connectivity remains a pressing issue, with only around 40% of government schools in urban areas having access, and a mere 25% of rural schools connected to the internet. Furthermore, the availability of devices is

scarce, with only one in five students in government schools having access to personal digital devices like tablets or computers for educational purposes.

Despite these challenges, the government has initiated several programs aimed at bridging the technology gap, including the Digital India Campaign and PM eVidya, which focus on distributing tablets and laptops to schools and expanding broadband connectivity in rural regions. Additionally, efforts are underway to promote Open Educational Resources (OER) to ensure equitable access to quality digital content, allowing students in underprivileged areas to benefit from technology-enhanced learning.

Teacher training is a critical factor in the successful integration of technology in schools, as educators must possess the skills necessary to effectively incorporate digital tools into their teaching methodologies. The Integrated Approach to Technology in Education (ITE), introduced in government schools in 2012, marked a significant step toward training teachers in technology-enabled pedagogy. Over the past decade, some progress has been made, with more than 50% of government school teachers in urban areas receiving training in digital teaching methods. However, rural areas continue to lag behind, with less than 20% of teachers having undergone such training, which limits the widespread adoption of technology in these regions.

To address this disparity, government initiatives like the Pradhan Mantri Gramin Digital Saksharta Abhiyan (PMGDISHA) aim to enhance digital literacy in rural schools, equipping both teachers and students with the necessary skills to engage with digital learning platforms. In contrast, private schools tend to have a more structured approach to professional development, with approximately 70% of teachers reporting that they receive regular training and updates on the latest educational technologies. These programs ensure that educators remain knowledgeable about evolving digital tools, enabling them to create dynamic and engaging learning environments for their students.

The integration of technology in government schools faces numerous challenges, including inadequate infrastructure, limited access to digital devices, and a shortage of trained personnel. Conversely, while private schools are better equipped to leverage digital tools, they often cater to students from more privileged backgrounds, which exacerbates the digital divide. Nevertheless, both

sectors exhibit significant potential for growth. The National Education Policy (NEP) 2020 emphasizes the importance of promoting technological interventions across all levels of education, focusing on equitable access, teacher training, and digital literacy. As broadband penetration increases in rural areas and more teachers receive training in digital pedagogies, the gap between private and government schools is expected to narrow.

The landscape of technology integration in Indian schools presents a stark contrast between private and government institutions. While private schools have rapidly embraced digital tools, government schools, particularly in rural areas, continue to struggle to keep pace. However, with ongoing government support and policies like NEP 2020, there is optimism for improving infrastructure, digital literacy, and technology adoption in government schools. Key initiatives such as ICT@Schools and the DIKSHA platform offer promising avenues for scaling digital education across both private and government institutions.

Despite the rapid advancements in educational technology within private schools, the challenge remains to ensure that government schools, especially in rural areas, have access to the same resources and training opportunities. Addressing the gap in technology adoption between private and government schools requires systemic infrastructure improvements and focused teacher development programs.

Despite the existing disparities, the future of technology in education in India appears promising, driven by both private investments and public policies. A collaborative approach involving the private sector, government, and non-profit organizations can help bridge the digital divide, ensuring that students across India, regardless of their socio-economic background, can benefit from advancements in educational technology. By working together, stakeholders can create a more equitable educational landscape that empowers all students to thrive in a digital world.

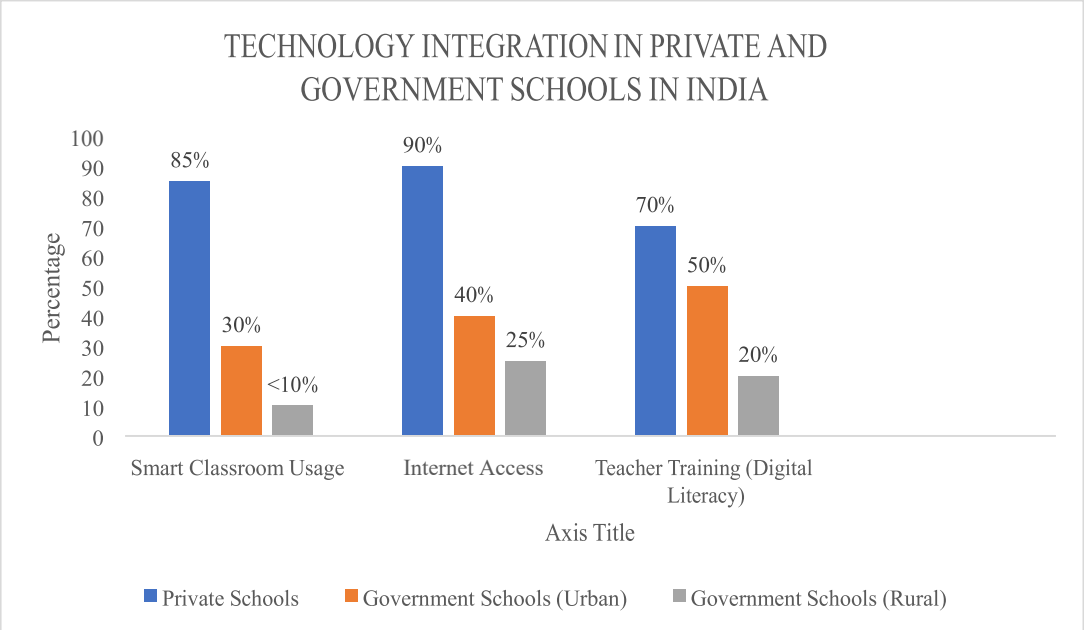


Figure-2

Technology Integration in Private and Government Schools in India
(MDPI, 2023; UNESCO, 2023; IJCRT, 2022).

TECHNOLOGY INTEGRATION IN CLASSROOMS AT NATIONAL AND INTERNATIONAL LEVELS:

The incorporation of technology into educational settings has become a fundamental aspect of contemporary education systems worldwide. Various countries, including India, have adopted different strategies to integrate digital tools aimed at enhancing teaching and learning outcomes. However, the extent of this integration, the challenges encountered, and the overall effectiveness differ markedly between developed nations and developing countries like India.

In India, the adoption of technology in classrooms has experienced notable growth, particularly in the aftermath of the pandemic, which necessitated a shift to online learning models. A recent report from the Unified District Information System for Education Plus (UDISE+ 2021-2022) indicates that approximately 45% of schools in India have internet access, with urban schools enjoying better connectivity than their rural counterparts. The National Education Policy (NEP) 2020 has underscored the importance of integrating technology into classrooms,

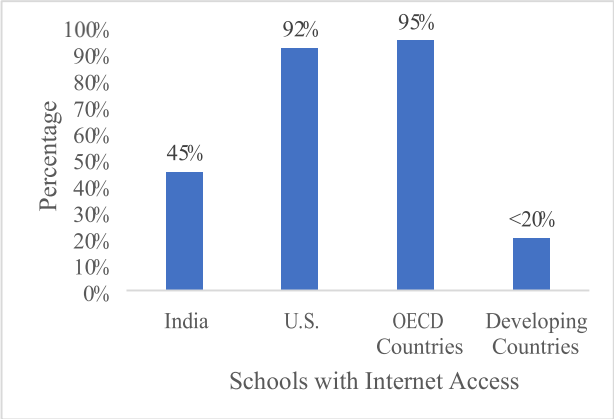
promoting digital literacy and online learning platforms. Initiatives such as DIKSHA (Digital Infrastructure for Knowledge Sharing), ePathshala, and Swayam have played a significant role in advancing the use of technology within the educational framework. Nevertheless, substantial gaps remain, particularly in access, as nearly 70% of rural schools lack the necessary infrastructure to effectively implement digital learning.

While private schools in urban areas have rapidly adopted smart classrooms, online assessments, and Learning Management Systems (LMS), government schools, especially in rural regions, continue to face challenges related to connectivity, device availability, and teacher training. In contrast, the integration of technology in classrooms is more advanced in developed countries. For instance, in the United States, Canada, and the United Kingdom, technology is deeply embedded in the education system, with 92% of K-12 schools in the U.S. having access to high-speed internet, as reported by EdTech Magazine in 2022. These nations boast robust digital infrastructures that facilitate the widespread use of smart boards, interactive software, and one-toone device programs, ensuring that each student has access to a laptop or tablet.

Globally, the Organisation for Economic Co-operation and Development (OECD) reports that around 95% of students in developed countries have access to a computer or internet-connected device in school. In stark contrast, this figure drops to below 20% in lower-income countries, highlighting a significant digital divide. Countries like Finland and Singapore have taken the lead in utilizing educational technology, employing artificial intelligence and data analytics to personalize learning experiences and monitor student performance in real-time.

Despite these disparities, there is a concerted global effort to bridge the digital gap. Various international organizations, including UNESCO and UNICEF, are collaborating with governments to promote technology integration through funding, digital literacy initiatives, and teacher training programs. For instance, UNESCO's Global Education Coalition aims to harness technology to ensure learning continuity during crises, particularly in underdeveloped and developing nations.

In summary, while countries such as the U.S. and Finland have successfully integrated technology into all facets of their education systems, nations like India continue to grapple with infrastructural challenges. The path to global progress hinges on equitable access to technology, comprehensive teacher training, and robust government support, ensuring that students from all socioeconomic backgrounds can benefit from digital learning opportunities.



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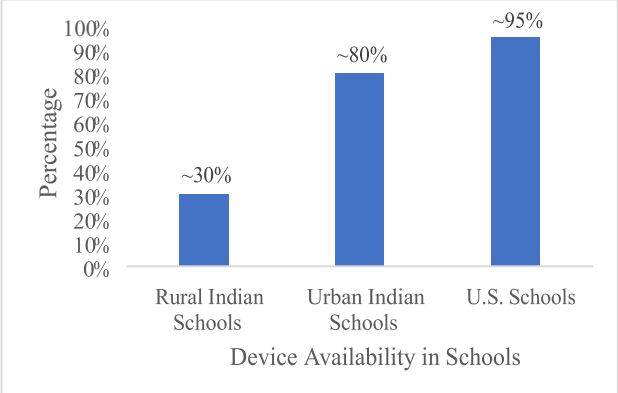

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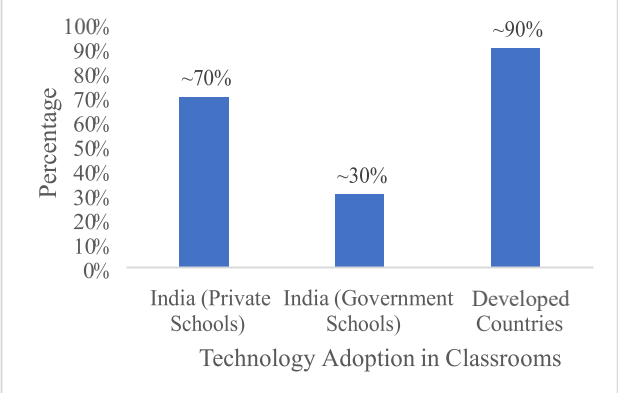

Figure-5

Figure- 3, 4 & 5

Data showing schools with Internet access; Data availability; and technology adaption in classrooms.
(UDISE+, 2022; NEP, 2020; OECD, 2022; Schaffhauser, 2022).

BARRIERS TO TECHNOLOGY INTEGRATION:

The change process is complex. One could therefore assume that the problems and barriers associated complex change are also complex. Technological change is considered to be a major innovation, not a minor one.

As with any educational change, there are many barriers that can cause any innovation to be less than substantially realised. Technological change is no different. One of the most alarming facts is the fact that the same barriers have existed for a very long time without much organisational success in overcoming them. For example, during the post World War II era, picture film became one of the world's most prominent technologies. This new technology was alleged to transform not only the way we lived but, in the way, students would learn in school. There were however, disappointments in how educators used to film and there were some barriers to its implementation as a teaching tool.

Barriers to technological integration in education have remained persistent over the decades, evolving in form but not in essence. More than 50 years ago, educators faced significant challenges in incorporating film resources into the curriculum due to difficulties in finding suitable content that aligned with educational objectives, inaccessibility of necessary equipment, high costs associated with purchasing and maintaining films, and a general lack of teacher expertise in operating audiovisual tools. The challenges encountered in the early days of educational technology closely mirror those faced today. Despite progress in digital learning tools, the most frequently mentioned obstacles include a lack of time, as teachers find it difficult to balance traditional teaching with the learning curve associated with new technologies. Many schools, especially in rural areas, still struggle with inadequate digital infrastructure, such as unreliable internet connectivity and electricity, which complicates the seamless adoption of technology. Additionally, insufficient resources, including digital devices, software, and updated learning management systems, further impede the effective integration of technology in classrooms.

A significant issue is the lack of expertise among educators, as many have not received adequate training to utilize digital tools effectively in their teaching practices. Without proper guidance, teachers may feel hesitant or unable to incorporate technology into their lessons. Moreover, insufficient institutional support—whether in terms of funding, professional development, or technical assistance—hinders schools from achieving sustainable long-term technology integration. These ongoing challenges underscore the necessity for continuous investment in teacher training, infrastructure development, and policy reforms to ensure that technology can be effectively utilized to enhance education across all regions. One reason these barriers persist is that they have often been addressed in isolation, rather than as part of a comprehensive strategy. For example, a simple strategy to overcome such barriers might be to simply remove them. However, that has not always resulted in the appropriate or increased use of technology in schools. This would suggest that there are more complex factors involved in successfully integrating technology into the curriculum.

Part of the problem could be the educational system's inability to break free of the ways that staff development has been done for years. There is tremendous potential in integrating technology into schools but it is not being realised. Part of the reason is that teachers do not separate the computer training they receive from the new learning theories they are trying. In a study of teachers being trained in constructivist teaching using technology, the training was not fully realised because teachers felt they learned about computers, not about a new learning theory.

Another suggestion is that there are only three stages or categories that teachers move through on their way to adopting a change. Those stages are confidence, competence and creativity. Although these stages are not as detailed as the ones indicated by other researchers, this still suggests that the teacher is an important part of the complex process that is involved with the integration of educational technology into schools.

TECHNOLOGY APPLICATIONS IN CLASSROOMS LEADS TO CHANGE IN STUDENT AND TEACHER ROLES:

The traditional definition of literacy is the ability to read and write. With the rapid development of new technologies, the nature of literacy is undergoing a

rapid metamorphosis. Thus, in addition to reading and writing, the current definition of literacy also includes the ability to learn, comprehend and interact with technology in a meaningful way.

When students are using technology as a tool or a support for communicating with others, they are in an active role rather than the passive role of recipient of information transmitted by a teacher, textbook or broadcast. The student is actively making choices about how to generate, obtain, manipulate or display information. Technology use allows many more students to be actively thinking about information, making choices and executing skills than is typical in teacher-led lessons. Moreover, when technology is used as a tool to support students in performing authentic tasks, the students are in the position of defining their goals, making design decisions, and evaluating their progress.

The teacher's role changes as well. The teacher is no longer the centre of attention as the dispenser of information, but rather plays the role of facilitator, setting project goals and providing guidelines and resources, moving from student to student or group to group, providing suggestions and support for student activity. As students work on their technology-supported products, the teacher rotates through the room, looking for shoulders, asking about the reasons for various design choices, and suggesting resources that might be used.

EFFECTS OF TECHNOLOGY IN CLASSROOM:

INCREASED MOTIVATION AND SELF ESTEEM-

The most common and in fact, nearly universal-teacher reported effect on students was an increase in motivation. Teachers and students are sometimes surprised at the level of technology-based accomplishment displayed by students who have shown much less initiative or facility with more conventional academic tasks.

Teachers talked about motivation from a number of different perspectives. Some mentioned motivation with respect to working in a specific subject area, while others spoke in terms of more general motivational effects like student satisfaction with immediate feedback provided by the computer and the sense of accomplishment and power gained in working with technology.

In many of these classes, students choose to work on their technology-based projects during recess or lunch periods. Teachers also frequently cite technology's motivational advantages in providing a venue in which a wider range of students can excel. Compared to conventional classrooms with their stress on verbal knowledge and multiple-choice test performance, technology provides a very different set of challenges and different ways in which students can demonstrate what they understand (e.g., by programming a simulation to demonstrate a concept rather than trying to explain it verbally).

A related technology effect stressed by many teachers was enhancement of student self-esteem. Both the increased competence they feel after mastering technology-based tasks and their awareness of the value placed upon technology within our culture, led to increase in students' (and often teachers') self-worth.

Students clearly take pride in being able to use the same computer-based tools employed by professionals. Technology is valued within our culture. It is something that costs money and that bestows the power to add value. By giving students technology tools, we are implicitly giving weight to their school activities. Students are very sensitive to this message that they, and their work are important.

TECHNICAL SKILLS-

Students, even at the elementary school level, are able to acquire an impressive level of skill with a broad range of computer software. Although the specific software tools in use will likely change before these students enter the world of work, the students acquire a basic understanding of how various classes of computer tools behave and a confidence about being able to learn to use new tools that will support their learning of new software applications.

ACCOMPLISHMENT OF MORE COMPLEX TASKS-

Teachers for the observed classes and activities at the case study sites were nearly unanimous also in reporting that students were able to handle more complex assignments and do more with higher-order skills because of the supports and capabilities provided by technology.

MORE COLLABORATIONS WITH PEERS-

Another effect of technology cited by a great majority of teachers is an increased inclination on the part of students to work cooperatively and to provide peer tutoring. While many of the classrooms we observed assigned technology-based projects to small groups of students, as discussed above, there was also considerable tutoring going on around the use of technology itself.
Collaboration is fostered for obvious reasons when students are assigned to work in pairs or small groups for work at a limited number of computers. But even when each student has a computer, teachers note an increased frequency of students helping each other. Students who have mastered specific computer skills generally derive pride and enjoyment from helping others.
While the integration of technology in educational settings often encourages collaboration and cooperation among students, concerns regarding appropriate student behavior remain prevalent. Many schools have established acceptable use policies, particularly when providing students with internet access.

INCREASED ACADEMIC MOTIVATION-

The incorporation of technology in classrooms has played a crucial role in boosting students' academic motivation. Digital learning tools offer personalized experiences, enabling students to learn at their own pace and revisit challenging concepts without external pressure. This sense of autonomy fosters ownership of their learning, which enhances intrinsic motivation. Interactive features such as gamification, simulations, and virtual labs make lessons more engaging, transforming traditional passive learning into an active and enjoyable experience. Furthermore, online collaboration tools and discussion forums promote peer interaction, creating a sense of community and healthy academic competition that motivates students to excel.

Immediate feedback from digital assessments allows students to monitor their progress, set specific goals, and maintain motivation to enhance their performance. Additionally, access to a variety of educational resources, including online courses, video tutorials, and e-books, enables students to explore topics beyond the standard curriculum, further fueling their academic curiosity and motivation. However, the effectiveness of technology as a motivational tool hinges on its appropriate use; excessive screen time and distractions can negatively impact learning outcomes. When thoughtfully

integrated, technology fosters a dynamic and personalized learning environment that supports and sustains students' motivation for academic success.

INCREASED ACHIEVEMENT MOTIVATION IN STUDENTS-

Moreover, the integration of technology has significantly influenced students' achievement motivation by enhancing engagement, personalization, and goalsetting. Adaptive learning platforms, such as AI-driven tutors and personalized educational software, empower students to learn at their own pace, promoting a sense of autonomy and control over their educational journey. This individualized approach allows students to revisit difficult topics without pressure, thereby increasing intrinsic motivation.

Gamification elements, including interactive quizzes, simulations, and virtual labs, further enhance engagement, encouraging sustained interest and active participation. Digital collaboration tools also facilitate peer interaction, fostering both competition and teamwork, which can drive students to perform better.

Additionally, immediate feedback from online assessments helps students track their progress, set realistic goals, and remain motivated to improve. Overall, the thoughtful integration of technology in education can significantly enhance both academic and achievement motivation among students.

WHY TECHNOLOGY IS VITAL FOR EDUCATION:

Some fundamental reasons why technology is important in education are enlisted below:

In a typical high school, a student has access to a teacher 40 minutes per day. That means she has access to that teacher 5% of her waking day, and even that time is shared with 25 classmates. She has access to the Internet 100% of the time. That’s 20x better.

Technology is no substitute for an inspiring teacher. However, online materials are far more available. Twenty times more.

Using the “textbook plus classroom” approach, the places where learning can occur are limited. On the other hand, a wireless laptop has access to the teacher’s course material and the entire Internet almost anywhere. This is also a vastly larger resource than can be practically carried on paper in a bag pack.

Technology allows learning anywhere, anytime; not just in one particular classroom for forty minutes a day.

Interactive simulations and illustrations can produce a much greater depth of understanding of a concept. When virtual manipulatives are used in classroom setting, they can go far beyond chalk and talk. Using a projector, the teacher can conduct onscreen investigations and demonstrate concepts far more easily than with just words and arm-waving.

Because the students have access to the same tools over the web, they can reinforce the ideas by experimenting with the simulations themselves, anytime, anywhere.

Technology allows the tables to be turned. Instead of teaching (push), students an be given projects that require them to learn (pull) the necessary materials themselves. Key to this is the ability to get the information they need anytime, anywhere, without being in the physical presence of a teacher. This projectbased pull approach makes learning far more interesting for the students.

In the old days, students could write in a notebook, and what they wrote could only be seen by the teacher. Using modern technology, they can: make a power point presentation, record/edit spoken word, do digital photography, make a video, run a class newspaper, run a web-based school radio or T.V. station, do Claymation, compose digital music on a synthesizer. Make a website, create a blog etc.

A vital skill in the new digital world is the ability to work collaboratively on projects with others who may not be physically close. This can best be done using modern computer tools such as the web, email, instant messaging and cell phone. Rather than labouring alone on homework, students can work in small groups wherever they happen to be and at any time. They are doing this already (it used to be called cheating)- it can be formalized and taught as a vital skill. Many university projects are undertaken by teams spread around the world. Students need to be prepared for this.

The worldview of the student can be expanded because of the zero cost of communicating with other people around the globe. The Internet permits free video conferencing which permits interaction in real time with sister schools in other countries. From an educational viewpoint, what could be more important than understanding other cultures through direct dialog and collaboration.

Students are, of course, all different. Information technologies can permit them to break step with the class and go at a pace and order that suits that student better. Without disrupting the class. They can repeat difficult lessons and explore what they find interesting. With time, it will become more like having a private tutor rather than being lost in a large class.

Three textbooks and three binders easily weigh over 25lb. a laptop computer weighs about 5lb and provides access to infinitely more material via its own storage and the Internet. A 40Gb hard drive can hold 2 million pages with illustrations; the web is unfathomably large. Right now, students are getting back injuries lugging around a tiny subset of what they need in the form of black marks on slices of dead trees. And its just static, boring texts.

Students need productivity tools for the same reasons you do. They need to write, read, communicate, organize and schedule. A student's life is not much different from any knowledge worker, and they need similar tools. Even if they are never used in the classroom, portable personal computers will make a student's and teacher's life more effective. To cash in this benefit, schools need to go paperless.
It is not unusual for a textbook to cost over 1200/-, and in community colleges, where they are purchased by the student, they can cost more than the tuition itself.

Today a decent laptop can be bought for 50,000/-, the price of a few textbooks. Right now, we need both the paper books and the computer, but that is simply a transitional phase.

In summary, if education is about knowledge and intellectual skills, then information technology lies at the heart of it all. We have only just begun this transition. School will eventually look very different.

REVIEW OF LITERATURE

In the 21st century, the pervasive influence of technology has dynamically altered the landscape of education, with digital resources emerging as transformative tools in the teaching and learning process. This research delves into the consequential impact of digital resources on education systems, specifically exploring the divergent trajectories within government and private schools. As educational paradigms continue to evolve, understanding how these institutions harness digital tools becomes imperative for shaping effective policies and practices. The historical trajectory of education has been marked by periods of innovation, and the current era is no exception. The advent of digital resources - encompassing interactive smart boards, online platforms, ebooks, and diverse applications - has ushered in an era where traditional teaching methods are augmented or, in some cases, revolutionized.

This research situates itself within this context, seeking to comprehend how the integration of digital resources shapes the educational experience in government and private schools. Government and private schools represent distinct spheres within the educational landscape, each governed by unique structures, funding mechanisms, and administrative frameworks. This study acknowledges the diversity inherent in these systems and aims to dissect the nuanced ways in which digital resources impact teaching, learning, and overall educational outcomes (Kaur & Lal; 2024).

According to Usluel, et al., (2008), ICT is rapidly used to fulfil the promises of universal education. Therefore, computer studies should be treated as a requirement and students should have unfettered access to computers and internet applications during computer class and free time. Lim (2007) in his study illustrated that to develop an efficient and productive human resource, secondary education must be improved. It is impossible to overstate the importance of ICT in secondary schools, as having these abilities is increasingly necessary to survive in the digital age. Several institutions believe that it is vital for students to receive ICT orientation and maintain their soft skills. This warrants students to acquire ICT skills at their earliest. Patton, (1990) found in his study that learning is an ongoing process that compels the use of novel tools and techniques to acquire up-to-date information Thus, ICT has evolved into a critical component of the information society. According to Rogers, (2003), ICT

has integrated with society for different purposes such as communication, entertainment, shopping and education. Accordingly, education paves the ways for the permanent development of human life. Wang and Woo (2007) propagate that the primary application of ICT in education is to discover information through research, as ICT has promoted the ability to dynamic learning in schools. Furthermore, Török (2007) reports that ICT use can benefit students both, in their current studies and in their future professional lives.

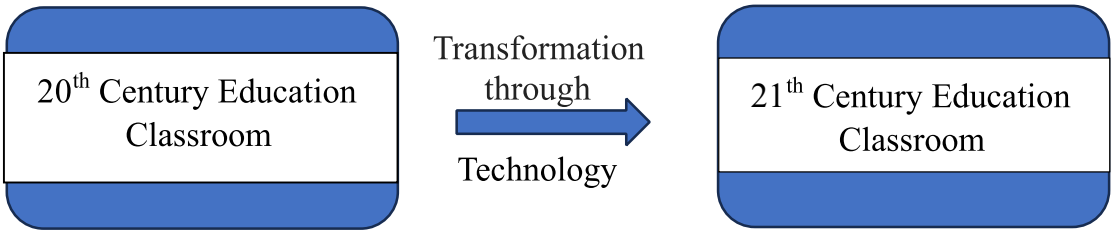

Figure 6- Conceptual Framework (Ali; Afzal; Muzaffar; Saifuddin; Khan & Jahangir; 2024)

The role of technology in the world of education has been ever changing. Most recently, technology has been a new phenomenon to help motivate, differentiate, and allow students to achieve and excel in ways that they have never been able to before. According to Johnson (2003), the computer and technology, if used correctly, has the ability to "invoke dream in the minds of visionary educators who saw endless potential for altering traditional notions of teaching and learning" (p.2). Two past presidents saw the need for fundamental change in education to keep American students in competition with technology with other students from around the world. In 1994, President Bill Clinton signed The Goals 2000: Educate America Act (Goals 2000: Educate America Act, 1994). There were many parts of this bill that involved technology and education. Part C of The Goals 2000: Educate America Act, Leadership in Technology, (a) calls upon the Department of Education to create a national strategy to involve technology into all educational programs and the state and local school systems, (b) foster understanding of how technology can be used to improve teaching and learning, (c) show how technology can be used to create an equal opportunity for all students to be successful while meeting state education requirements, and (g) create high-quality professional education opportunities for educators with the ability to integrate technology into their instruction (Goals 2000: Educate America Act, 1994).

After President Bill Clinton signed this bill into action, President George W. Bush pushed one step further with education and technology while he passed the No Child Left Behind (NCLB) Act in 2001. This bill sought to close the achievement gap in education, while also creating accountability amongst schools and states, alike, and choice and flexibility so no child is left behind in education. (No Child Left Behind Act of 2001, 2002). The goal of Part D of the No Child Left Behind Act was to improve student academic achievement through the use of technology. The main points of Part D, Enhancing Education through Technology Act of 2001 include, (a) assistance to states for the implementation of technology into schools, elementary and secondary, to promote and encourage student academic achievement, (b) establish and develop technology initiatives in regards to access to technology, (c) assistance for acquisition of technology, which increases the amount of students who have accessibility to technology, (e) professional development initiatives for teachers and administrators, (h) supports for efforts to involve families in education and to help in communication (No Child Left Behind Act of 2001, 2002). The No Child Left Behind Act also sought to decrease the digital divide between students and to also use best practices while integrating technology with teacher training to establish research-based instructional methods.

Keshta and Harb (2013) defined blended learning as "a natural evolution of elearning towards a complete program of various multimedia applied in an ideal way to solve problems, taking care of the individual differences and achieving distinguished teaching". Though blended learning is challenging (Kihoza et al., 2016; Florian & Zimmerman, 2015), it has positively influenced student's motivation and shown positive results (Zainuddin & Perera, 2019; Edward, Asirvatham & Johar, 2018). Deci and Ryan (2000) presented self-determination theory and explained that that pupils are naturally active and engaged, if their motivation level is high. Within self-determination theory, intrinsic motivation keeps people engaged in learning, knowledge gain exercises without any greed of reward or fear of punishment. Taylor and colleagues (2014) studied selfdetermination theory and connected relation of motivation to academic achievements in a cross-cultural study between Canadian and Swedish students and found robust results. Ferrell, Phillips, and Barbera (2016) studied selfefficacy, interest and effort beliefs as a course of motivation among 170 chemistry students and found that self-efficacy was the strongest influencer for academic achievement. Similarly, Husain (2014) research on 135 Pakistani

business students in Karachi in 2012-2013 found a significant positive relationship between self-efficacy and academic motivation.

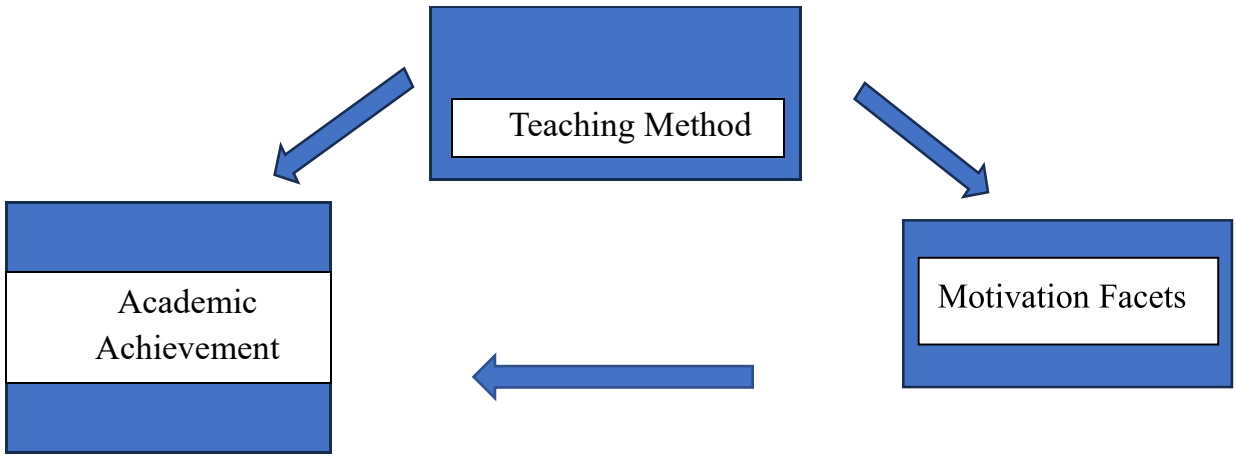

Figure 7- Impact of Blended Learning on Motivation and Achievement (Siddiqui; Thomas & Soomro; 2020)

The integration of technology in education has been widely discussed in academic discourse, emphasizing its impact on pedagogy, student engagement, and academic performance. Various studies highlight the significance of digital tools in enhancing learning outcomes and preparing students for the demands of the digital age.

Digital resources, such as interactive learning platforms, educational applications, and virtual simulations, have significantly transformed the

educational landscape by promoting a more student-centered approach to learning. Research by Clark and Mayer (2016) indicates that multimedia learning environments that incorporate both visual and auditory elements can enhance students' comprehension and retention of information. Their findings emphasize the importance of well-designed digital content that aligns with cognitive load theory, ensuring that students can absorb information effectively. Similarly, Lai and Bower (2019) argue that emerging technologies, including artificial intelligence (AI) and augmented reality (AR), are reshaping instructional practices by providing personalized learning experiences and fostering critical thinking skills.

Information and Communication Technology (ICT) has played a vital role in improving student academic performance. Bebell and O'Dwyer (2010) found that students with access to digital tools exhibit higher levels of engagement and achievement compared to those in traditional classroom settings. Their research indicates that integrating technology leads to enhanced problem-solving abilities and collaborative learning experiences. Additionally, a meta-analysis conducted by Tamim et al. (2011) over 40 years of research on technology and student outcomes concluded that technology-enhanced learning environments positively influence student achievement across various subjects.

Despite the numerous advantages of technology in education, several challenges hinder its widespread adoption. Ertmer and Ottenbreit-Leftwich (2013) identify key factors influencing successful technology integration, including teacher attitudes, technological proficiency, and institutional support. The digital divide, which refers to the disparities in access to technology among different socioeconomic groups, remains a significant concern. Warschauer (2004) highlights that students from low-income backgrounds often have limited access to digital resources, exacerbating educational inequalities.

The role of educators in facilitating technology-driven learning is crucial. Mishra and Koehler (2006) introduced the Technological Pedagogical Content Knowledge (TPACK) framework, which emphasizes the need for teachers to balance content knowledge, pedagogical skills, and technological expertise to effectively integrate digital tools into their teaching. Furthermore, Lawless and Pellegrino (2007) argue that professional development programs must be

tailored to equip teachers with the necessary skills to navigate digital platforms and incorporate them into their teaching methodologies.

As digital tools continue to advance rapidly, the future of education is expected to become increasingly reliant on technology. Voogt et al. (2013) predict that 21st-century learning environments will prioritize collaboration, problemsolving, and digital literacy as core competencies. The emergence of adaptive learning technologies, which customize instructional content based on student progress, is poised to redefine traditional education systems.

Research consistently highlights the transformative role of technology integration in enhancing student engagement, motivation, and learning outcomes. Fredricks, Blumenfeld, and Paris (2004) emphasize that student engagement is a multidimensional construct encompassing behavioral, emotional, and cognitive aspects, all of which can be positively influenced by digital tools. A meta-analysis by Schindler et al. (2017) demonstrates that technology-enhanced learning environments significantly contribute to increased student engagement, particularly in higher education. The incorporation of interactive platforms, multimedia resources, and real-time feedback mechanisms fosters a more immersive and participatory learning experience, allowing students to remain actively involved in their educational journey.

Flipped learning has emerged as a widely studied instructional approach that utilizes digital resources to shift the delivery of theoretical content outside the classroom, dedicating in-person sessions to active discussions and problemsolving. Bergmann and Sams (2012) argue that the flipped classroom model enhances student participation by transforming passive lectures into interactive learning experiences. Bishop and Verleger (2013) further elaborate that flipped learning significantly improves student understanding by promoting critical thinking and problem-solving skills. This model allows learners to engage with course material at their own pace, revisit challenging concepts, and apply their knowledge in a collaborative classroom setting, ultimately leading to improved academic performance.

Gamification in education has also garnered significant research attention, with numerous studies indicating its positive effects on student motivation and knowledge retention. Hamari, Koivisto, and Sarsa (2014) conducted a

systematic literature review and found that incorporating game-like elements, such as rewards, leaderboards, and challenges, fosters higher engagement levels and better learning outcomes. Deterding et al. (2011) argue that gamified learning environments encourage problem-solving and perseverance, as students are more likely to persist through complex tasks when incentivized by interactive and competitive elements. The use of gamification techniques in digital learning platforms has gained traction across various disciplines, enhancing intrinsic motivation and promoting self-directed learning.

Artificial intelligence is also playing an increasingly important role in modern education, with AI-driven tools such as adaptive learning platforms and intelligent tutoring systems revolutionizing personalized instruction. Luckin et al. (2016) suggest that AI-based systems can analyze student performance data and tailor educational content to meet individual learning needs. Similarly, Chen, Chen, and Lin (2020) found that AI-assisted learning environments significantly enhance academic achievement by providing real-time feedback and customized learning pathways. These advancements have the potential to bridge learning gaps by catering to diverse student abilities and ensuring that learners receive targeted support throughout their educational journey.

Despite the evident benefits of technology in education, several barriers continue to hinder its widespread adoption. Hew and Brush (2007) identify key obstacles, including inadequate teacher training, limited access to technological infrastructure, and resistance to change among educators. Ertmer and Ottenbreit-Leftwich (2013) further highlight that teacher attitudes and proficiency in using digital tools are critical factors determining successful technology integration. The digital divide remains a pressing concern, as Warschauer (2004) emphasizes that students from low-income backgrounds often face restricted access to digital resources, exacerbating educational inequalities.

Addressing these challenges requires a comprehensive approach that includes professional development for educators, equitable distribution of technological resources, and ongoing support for schools to effectively integrate technology into their teaching methodologies. The future of education is expected to become increasingly reliant on digital tools, with emerging technologies such as artificial intelligence, augmented reality, and adaptive learning platforms reshaping traditional instructional practices. Voogt et al. (2013) predict that 21st-

century learning environments will prioritize collaboration, problemsolving, and digital literacy as core competencies.

As educational institutions continue to embrace technology-driven pedagogies, it is essential to develop policies that ensure inclusive access to digital resources while equipping educators with the skills necessary to leverage these tools effectively. The evolution of technology in education signifies a paradigm shift toward more personalized, engaging, and innovative learning experiences, ultimately preparing students for the demands of the digital age.

The integration of technology in education has been extensively studied, with research indicating its profound impact on teaching methodologies, student engagement, and academic performance. According to Selwyn (2011), digital technology has shifted the traditional role of educators, transforming them from sole knowledge providers to facilitators of interactive and student-centered learning. The adoption of technology has enabled differentiated instruction, allowing educators to cater to individual learning needs and styles more effectively.

Furthermore, research by Mishra and Koehler (2006) highlights the significance of the Technological Pedagogical Content Knowledge (TPACK) framework, emphasizing the need for teachers to balance technological proficiency with subject matter expertise and pedagogical strategies for effective classroom implementation. Digital literacy is another crucial aspect influencing student outcomes in technology-enhanced learning environments. Buckingham (2013) argues that students must be equipped with digital competencies to navigate, evaluate, and create content responsibly in an increasingly digitalized world. Similarly, Hargittai (2010) found that disparities in digital literacy among students contribute to the digital divide, impacting their ability to leverage technology for academic success.

Warschauer (2004) underscores that access to technology alone is insufficient; rather, meaningful integration of digital tools into the curriculum is essential for bridging educational inequalities. The role of Learning Management Systems (LMS) in modern education has also been widely explored. According to Dabbagh and Kitsantas (2012), LMS platforms provide an organized digital space for instructional delivery, communication, and assessment, promoting self-regulated learning among students. A study by Wang et al. (2013) found that

LMS adoption significantly improved student engagement and academic performance, particularly when integrated with active learning strategies such as discussion forums, collaborative projects, and personalized feedback mechanisms.

However, Garrison and Kanuka (2004) caution that the effectiveness of LMS depends on the level of instructor involvement and the alignment of technology with pedagogical objectives. Blended learning models, which combine traditional face-to-face instruction with online learning, have gained prominence in recent years. According to Graham (2006), blended learning offers flexibility and enhances student engagement by allowing learners to interact with digital resources at their own pace. A meta-analysis conducted by Means et al. (2010)

concluded that students in blended learning environments tend to perform better than those in purely traditional or online settings. The study attributed this improvement to increased opportunities for active learning, collaboration, and access to diverse multimedia content that supports different learning preferences.

Moreover, research on artificial intelligence (AI) in education suggests that AIdriven tools can personalize learning experiences, offering adaptive assessments and real-time feedback tailored to student needs. Luckin et al. (2016) highlight that AI-powered platforms, such as intelligent tutoring systems, enhance student comprehension by identifying knowledge gaps and providing targeted interventions. Similarly, Holmes et al. (2019) discuss the ethical implications of AI in education, stressing the importance of data privacy, bias mitigation, and human oversight to ensure equitable learning experiences.

Despite the advantages of technology integration, several barriers persist. Ertmer and Ottenbreit-Leftwich (2013) identify teacher attitudes, limited professional development, and inadequate institutional support as major obstacles to effective implementation. Additionally, Selwyn (2016) points out that while technology holds great potential for educational transformation, its success largely depends on contextual factors, including infrastructure, policy support, and stakeholder engagement. The ongoing challenge remains in ensuring that technology serves as an enabler rather than a barrier to quality education.

CHAPTER TWO:

RATIONALE FOR THE STUDY

The integration of technology in education has significantly altered traditional teaching and learning methods, presenting both opportunities and challenges for educators and students alike. As digital resources become more prevalent in classrooms, it is essential to evaluate their effects on student engagement, learning outcomes, and overall academic performance. This study aims to investigate how government and private schools utilize digital tools differently and how these differences impact the educational experience.

While technology has the potential to enhance teaching strategies, disparities in access, infrastructure, and teacher preparedness have led to inconsistent implementation across various educational settings. This research seeks to bridge these gaps by analyzing the effectiveness of technology integration and identifying areas that require improvement. A primary motivation for this study is the rapid advancement of educational technology and its influence on 21stcentury learning. With the rise of e-learning platforms, artificial intelligence, and interactive digital content, students now have access to an unprecedented wealth of information. However, the effectiveness of these resources varies significantly between government and private institutions.

Private schools typically benefit from better funding, enabling them to adopt advanced technological tools and provide ongoing teacher training. In contrast, government schools, especially in rural areas, often face challenges such as inadequate infrastructure and limited digital literacy among educators. This study aims to understand the extent of these disparities and propose strategies to ensure equitable access to digital learning opportunities.

Previous research has highlighted both the advantages and obstacles associated with technology integration in education. Studies indicate that digital resources can enhance student motivation, facilitate personalized learning, and promote collaboration. However, challenges such as insufficient teacher training, resistance to change, and infrastructural limitations continue to impede seamless adoption. By conducting a comparative analysis of government and private

schools, this study seeks to offer valuable insights into best practices that can be replicated across diverse educational contexts.

The findings will contribute to the expanding body of literature on digital pedagogy and inform policymakers, school administrators, and educators about effective strategies for leveraging technology to improve learning outcomes. Additionally, this research is significant in light of the growing emphasis on digital literacy as a crucial skill for the future workforce. In a world increasingly driven by automation and artificial intelligence, students must develop technological proficiency to remain competitive in the global job market. Schools play a vital role in equipping students with these essential skills, making it imperative to evaluate the effectiveness of current digital learning strategies.

This study will assess the impact of digital tools on academic performance and explore their role in fostering critical thinking, problem-solving, and independent learning skills. Understanding how different types of schools implement technology can help create more inclusive and effective educational policies that cater to students from various socio-economic backgrounds. By examining the technological landscape of education, this research aims to address key questions regarding accessibility, efficiency, and the overall impact of digital learning.

The findings will serve as a foundation for future research and provide practical recommendations for educators and policymakers. As technology continues to reshape the educational ecosystem, ensuring its optimal use in all schools is crucial for fostering an equitable and innovative learning environment.

OBJECTIVES OF THE STUDY

The main aim of this study is to investigate the integration of digital resources in education and compare their effects on government and private schools. By examining how these institutions utilize technology, the research intends to highlight the advantages, challenges, and effectiveness of digital tools in enhancing student learning outcomes. This study will assess the accessibility and availability of digital resources in both types of schools, seeking to identify any disparities related to infrastructure, funding, and resource allocation, and

how these factors affect educational quality. By pinpointing gaps in technological access, the research will offer insights into potential solutions for bridging the digital divide. iv.

Another key focus is to evaluate the effectiveness of digital learning tools in enhancing student engagement and academic performance. The study will investigate whether technology-driven instruction improves critical thinking, problem-solving, and collaborative learning skills. Additionally, it will explore the perceptions of students and teachers regarding digital learning and their experiences in adapting to technology-based education. vi.

Furthermore, this research aims to examine the role of teacher training and professional development in the successful implementation of technology in classrooms. It will assess whether educators receive sufficient training in using digital tools and how this affects their ability to integrate technology into their teaching practices, ultimately providing recommendations for enhancing teacher preparedness and professional development initiatives.

The study will also address the challenges and barriers faced by both government and private schools in adopting digital resources, including issues such as insufficient funding, inadequate infrastructure, resistance to change, and limited digital literacy among teachers and students. Understanding these obstacles will aid in developing strategies to improve technology implementation in education.

Finally, the research aspires to contribute to the formulation of policies and best practices for effective technology integration in education. By analyzing real-world data and comparing various school environments, the study will offer evidence-based recommendations for policymakers, educators, and stakeholders to optimize the use of digital tools in classrooms. The ultimate goal is to promote equitable access to quality education through technology-driven learning solutions.

HYPOTHESIS:

The integration of digital resources is expected to significantly enhance student engagement and academic performance in both government and private schools. However, the level of access and implementation differs, with private schools enjoying greater availability of technological tools due to better infrastructure and funding. It is hypothesized that teacher training and professional development play a crucial role in the effective utilization of digital resources,

as educators with adequate training are more likely to integrate technology into their pedagogical practices. Furthermore, government schools face significant barriers such as inadequate infrastructure, limited funding, and low digital literacy, which hinder the widespread adoption of technology. Blended learning and technology-driven instruction are also anticipated to foster critical thinking, problem-solving, and collaborative learning skills among students, ultimately preparing them for the demands of the digital era.

OPERATIONAL DEFINITIONS:

Achievement motivation is defined as an individual's drive to complete tasks, set goals, and achieve excellence across various areas,

Academic motivation refers to the enthusiasm and commitment students show toward their educational endeavors.

CHAPTER THREE:

METHODOLOGY:

The study employs a comparative design, analyzing students from both government and private schools to explore the differing impacts of traditional and digital pedagogies across diverse academic frameworks. By utilizing both qualitative and quantitative research methods, this study aims to offer a thorough understanding of how technology integration affects learning outcomes.

RESEARCH DESIGN

- A comparative study analyzing the impact of traditional and digital pedagogies on students' learning experiences.
- A mixed-method approach incorporating both qualitative (student feedback, observations) and quantitative (test scores, survey responses) data collection methods.

SAMPLING TECHNIQUE

- Purposive Random Sampling will be used to select participants.

SAMPLE SIZE AND POPULATION

- Total Participants: 120 students
  - 60 students from government schools
  - 60 students from private schools

INCLUSION CRITERIA

Participants must meet the following criteria:

- Age: 15–18 years
- Gender: Male and female students
- Socio-economic status: Middle and upper-middle class
- Nationality: Indian
- Geographical area: Kolkata

- Educational background: Enrolled in either government or private schools

EXCLUSION CRITERIA

The following students will not be included in the study:

- Individuals below 15 or above 18 years of age
- Students not belonging to the middle or upper-middle class
- Genders other than male and female
- Students with any form of disability
- Students pursuing education through open schooling

DATA COLLECTION METHODS

- Surveys & Questionnaires: To assess students' perspectives on traditional and digital learning methods.
- Academic Performance Analysis: Comparing test scores to evaluate learning effectiveness.
- Observational Study: Monitoring classroom engagement and participation levels.
- Interviews & Focus Groups: Conducted with students and teachers to gain qualitative insights.

DATA ANALYSIS

- Quantitative Analysis: Statistical comparison of survey results and academic performance data.
- Qualitative Analysis: Thematic coding of interview responses and observational data to identify patterns in student engagement and learning preferences.

This methodology ensures a structured and comprehensive approach to evaluating the impact of technology integration in classrooms while maintaining a balanced perspective on both traditional and digital pedagogies.

HYPOTHESIS:

- Digitally equipped classrooms will ensure greater student engagement and motivation than those using traditional pedagogy.
- Positive attitudes towards learning will be higher in classrooms employing digital pedagogy than those adopting the traditional pedagogy.
- Integration of digital pedagogy by teachers in classroom instruction would ensure more student centric and innovative teaching practices compared to the traditional pedagogy method.
- Integra on of technology will have significant impact on mo va on and academic performance of students.

TOOLS USED IN THE STUDY:

The following tools were used in the study:

- Achievement Motivation Scale (n-Ach) - `1971; Prof. Pratibha Deo and Dr. Asha Mohan
- Academic Motivation Scale – 2012; Gabriel Stover et al.
- Interview Schedule developed by the researcher.

I. ACHIEVEMENT MOTIVATION SCALE (N-ACH) BY DEO AND MOHAN:

The Achievement Motivation Scale (AMS) by Deo and Mohan is a selfreport questionnaire designed to assess an individual's level of achievement motivation, particularly in academic and professional settings. It consists of 50 items and follows a Likert-type response format, where individuals indicate their agreement or disagreement with various statements related to motivation. The scale evaluates key dimensions such as perseverance, competitiveness, self-confidence, goal-setting, work ethic, and aspirations. A higher score reflects a stronger drive to achieve success, while a lower score suggests weaker achievement motivation. The AMS is primarily used for students, professionals, and individuals in psychological assessments, helping researchers, educators, and counsellors understand motivational tendencies. It is widely applied in educational research, career counseling, and employee assessment to identify

achievement-oriented behaviours and provide guidance for personal and professional growth.

The Achievement Motivation Scale (AMS) by Deo and Mohan consists of 50 items, each designed to assess different aspects of achievement motivation. The scoring process is straightforward and helps determine an individual's overall level of motivation. The scale follows a Likert-type format, where respondents indicate their level of agreement with each statement. One stencil key is to be used for scoring positive and negative items. A positive item carries the weight of 4, 3, 2, 1 and 0 for the categories of 'Always, Frequently, Sometimes, Rarely, Never' respectively. The negative item is to be scored 0, 1, 2, 3 and 4 for the same categories respectively that are given above, the total score is the summation of all the positive and negative items scores. The minimum score obtained can be 0 (zero) and the maximum can be 200, other scores ranging in between these limits. This is a quick scoring, self-administered scale which is also quick in administration and very easy for use in administration and scoring.

The Achievement Motivation Scale (AMS) by Deo and Mohan has demonstrated strong reliability, making it a consistent and dependable tool for measuring achievement motivation. Studies have reported high internal consistency, with Cronbach's Alpha values ranging between 0.70 and 0.85, indicating that the items effectively measure the same underlying construct. Moreover, the scale exhibits high test-retest reliability, indicating that individuals tend to achieve consistent scores when assessed at different times, demonstrating its stability across repeated evaluations. The split-half reliability of the scale is also robust, confirming that various sections of the test yield correlated results. These reliability metrics affirm the AMS as a reliable tool for assessing achievement motivation in educational, psychological, and professional contexts.

The Achievement Motivation Scale (AMS) developed by Deo and Mohan has shown strong validity, ensuring it accurately measures achievement motivation. It possesses content validity, as experts in psychology and education have validated its items to represent essential aspects of achievement motivation. The scale also demonstrates construct validity, with research confirming its ability to distinguish between individuals with high and low motivation. Furthermore, it

has criterion-related validity, as AMS scores significantly correlate with academic performance and work-related success, highlighting its effectiveness in practical applications.

II. ACADEMIC MOTIVATION SCALE BY STOVER ET AL.

The Academic Motivation Scale: High School Version (AMS-HS), created by Stover et al. (2012), is a self-report questionnaire aimed at evaluating students' academic motivation based on Self-Determination Theory (SDT). This scale is an adaptation of the Academic Motivation Scale (AMS) initially developed by Vallerand et al. (1992). The AMS-HS comprises 27 items, each assessing different types of motivation, including intrinsic motivation (engagement driven by personal interest and enjoyment), extrinsic motivation (motivated by external rewards or social expectations), and amotivation (a lack of motivation or purpose in academic activities). Respondents evaluate each item using a 4-point Likert scale, ranging from "Totally disagree" (1) to "Totally agree" (4), with higher scores indicating stronger motivation in the respective category. This scale has been validated for Spanish-speaking high school students and offers insights into the factors influencing academic engagement and persistence.

The Academic Motivation Scale: High School Version (AMS-HS) is scored using a 4-point Likert scale, where responses range from 1 (Totally Disagree) to 4 (Totally Agree). The scale consists of 27 items categorized into three main subscales based on Self-Determination Theory (SDT): Intrinsic Motivation (IM), Extrinsic Motivation (EM), and Amotivation (AM). Intrinsic Motivation reflects engagement driven by personal interest and enjoyment, while Extrinsic Motivation is based on external rewards or social expectations. Amotivation signifies a lack of academic motivation or purpose. To score the AMS-HS, responses for each subscale are summed, with higher scores indicating stronger motivation within that category. Additionally, a total motivation score can be calculated by summing all item responses, providing an overall measure of a student's academic motivation.

The Academic Motivation Scale (AMS), including its High School Version (AMS-HS), has shown strong reliability across various studies. Stover et al. (2012) reported satisfactory internal consistency, with Cronbach's alpha values exceeding 0.70 for most subscales, indicating good reliability. The original AMS, developed by Vallerand et al. (1992), also demonstrated high test-retest reliability, suggesting that the scale yields stable results over time. These findings support the AMS-HS as a dependable tool for measuring academic motivation among high school students, particularly within Spanish-speaking populations.

The Academic Motivation Scale: High School Version (AMS-HS) has exhibited strong validity, ensuring it accurately measures academic motivation. Stover et al. (2012) conducted factor analyses that confirmed the scale maintains the three-factor structure (Intrinsic Motivation, Extrinsic Motivation, and Amotivation) based on Self-Determination Theory (SDT). The scale also demonstrated construct validity, correlating appropriately with related psychological constructs, such as academic engagement and performance. Furthermore, its criterion validity was supported by its ability to differentiate between students with varying levels of academic persistence and dropout risk. These findings affirm the AMS-HS as a valid tool for assessing academic motivation in high school students.

DETAILED INTERVIEW PROCEDURE

This study utilized an in-depth, semi-structured interview process to investigate how technology integration in the classroom affects academic motivation and achievement motivation among high school students from both government and private schools. Below is a detailed description of the interview procedure, the questions posed, the sample responses received, and the method of data interpretation.

1. Recruitment and Ethical Considerations

- Participant Selection: High school students were recruited from both government and private schools using purposive sampling to ensure a diverse representation of experiences with both traditional and digital pedagogies.

- Ethical Protocols: Prior to conducting the interviews, ethical clearance was obtained from the relevant review board. Informed consent was secured from the students, with a clear explanation of the study's purpose, the confidentiality of responses, and the voluntary nature of participation.

2. Interview Setup and Environment

- Location and Format: Interviews were conducted in quiet, private rooms within the school premises to minimize distractions and create a comfortable atmosphere. In cases where in-person sessions were not feasible, a secure online platform was utilized.

- Recording and Transcription: With participant consent, all interviews were recorded.

3. Interview Structure and Questions

A semi-structured interview format was adopted to allow flexibility in probing responses while ensuring that key themes related to technology integration, academic motivation, and achievement motivation were consistently addressed.

4. Data Collection and Sample Responses

Each interview was structured to allow students to elaborate on their personal experiences, providing rich qualitative data. For example:

- On Engagement: Many students noted that the interactivity of digital tools increased their engagement compared to traditional lectures. One student remarked, "Using online quizzes during class breaks the monotony and keeps me alert."

- On Resource Disparities: A recurring theme was the disparity in technology access between government and private schools. "In my government school, we often have to share devices, which limits our ability to learn digitally," a student explained. These sample responses highlighted the perceived benefits of digital pedagogy—such as increased engagement and better understanding of complex

concepts—while also shedding light on the challenges arising from unequal resource distribution.

5. Data Analysis and Interpretation

The analysis of the interview data was conducted through a systematic thematic coding process:

- Transcription and Initial Coding: All interviews were transcribed verbatim. Each transcript was reviewed to identify key phrases and statements reflecting the students' experiences, feelings, and perceptions regarding technology use.

- Theme Identification: Recurring themes were identified, including:

- Engagement: Enhanced interactivity and interest during digital lessons.

- Motivation: Increased academic and achievement motivation due to dynamic digital tools.

- Resource Accessibility: Notable differences in the availability of digital resources between government and private schools.

- Teacher Support: The impact of teacher proficiency and support in using technology effectively.

- Challenges: Technical difficulties and limited access to technology.

- Comparative Analysis: The themes were compared between responses from students in government versus private schools. For instance, while students from private schools consistently reported high levels of motivation due to advanced digital tools, many government school students highlighted challenges related to limited access and less frequent use of technology.

- Interpretation: The data were interpreted in light of existing literature on academic and achievement motivation. Responses indicating heightened engagement and improved understanding were viewed as evidence of the positive impact of digital tools on academic motivation. Conversely, challenges cited by students, such as resource limitations and technical issues, were interpreted as barriers that could undermine achievement motivation.

- Validity Checks: To ensure the reliability of the interpretations, member checking was conducted, allowing participants to review summaries of their responses. Additionally, peer debriefing sessions were held with fellow researchers to cross-verify the coding process and thematic interpretations.

This detailed interview procedure facilitated a comprehensive exploration of high school students' perceptions regarding technology integration in their classrooms. By collecting nuanced responses on both the benefits and challenges of digital pedagogies, the study provided valuable insights into how these teaching methods affect academic motivation and achievement. The systematic coding and thematic analysis further enabled a robust comparison between experiences in government and private school settings, offering a richer understanding of the dynamics at play in different educational environments. Overall, the findings underscore the importance of not only integrating technology into the classroom but also ensuring equitable access and adequate teacher training to fully harness its potential to enhance student motivation and academic performance.

PLAN OF ANALYSES :

LEVEL OF VARIABLES	PURPOSE	MODE OF ANALYSES
Achievement Motivation	To investigate achievement motivation in children after technology integration in classrooms.	Achievement Motivation Questionnaire by Deo and Mohan was provided to 60 high school students of Government and Private schools each and their responses were interpreted using mean and standard deviation method.
Academic Motivation	To investigate academic motivation in children after technology integration in classrooms.	Academic Motivation Questionnaire by Stover et. al was provided to 60 high school students of Government and Private schools each and their responses were interpreted using mean and standard deviation method.

PRECAUTIONS:

The participants were made aware that the study was not a test, meaning there were no correct or incorrect answers to the questions. They were guaranteed full confidentiality, ensuring that their responses would remain anonymous and used exclusively for research purposes. Participation in the survey and interview was completely voluntary, and individuals were not obligated to participate if they chose not to. Furthermore, there was no time constraint for completing the questionnaire, allowing participants to answer at their own convenience. If they encountered any difficulties or had concerns, they were encouraged to seek clarification and assistance from the researcher.

CHAPTER FOUR:

RESULTS:

	Mean	SD
Ach. Mo va on Pvt. school	139.12	19.68
Ach. Mo va on Govt. school	136.48	22.76
Aca. Mo va on Pvt. school	78.86	8.58
Aca. Mo va on Govt. school	87.31	8.17

The results of this research offer important insights into the relationship between achievement motivation and academic motivation among students in private and government schools. The statistical analysis revealed that private school students exhibited slightly higher achievement motivation (M = 139.12, SD = 19.68) compared to their government school peers (M = 136.48, SD = 22.76). Conversely, government school students showed greater academic motivation (M = 87.31, SD = 8.17) than private school students (M = 78.86, SD = 8.58), Private school students had a mean score of 139.12 for achievement motivation, with a standard deviation of 19.68, while government school students had a slightly lower mean score of 136.48 but a higher standard deviation of 22.76. This indicates that private school students displayed slightly higher achievement motivation, although the greater variability in government school students' scores suggests that some had significantly higher motivation while others had much lower levels. Conversely, government school students exhibited a higher mean score of 87.31 for academic motivation compared to private school students, who had a mean score of 78.86. The standard deviations for academic motivation were 8.58 for private school students and 8.17 for government school students, indicating that government school students generally showed higher academic motivation, although both groups had similar variability in their responses.

CO-RELATION BETWEEN RESULTS:

	Aca. Mot P	**Aca. Mot Govt. Correla on**
Ach. Mot Pvt..	0.08	-
Ach. Mot Govt.	**-**	0.13

Correlation analysis between achievement motivation and academic motivation within each school type revealed further insights into the relationship between these constructs. For private school students, the correlation was 0.08, indicating a very weak positive relationship, suggesting that higher achievement motivation does not necessarily lead to higher academic motivation. This weak correlation may be attributed to differing motivational drivers, as private school students might find achievement motivation in non-academic areas such as extracurricular activities, competitions, and personal goals, which may not always align with their academic motivation.

In contrast, the correlation between achievement motivation and academic motivation among government school students was slightly higher at 0.13. Though still weak, this positive correlation suggests that students in government schools who exhibit higher achievement motivation are slightly more likely to have higher academic motivation as well. This could indicate that for government school students, academic success is a primary avenue for achieving personal and professional aspirations, leading to a stronger association between the two forms of motivation.

Interpreting these findings within the broader educational context, several explanations emerge. The slightly higher achievement motivation in private school students may be attributed to the competitive environment and structured curriculum that encourage goal-setting, performance excellence, and career oriented thinking. Private schools often provide additional resources, mentoring, and extracurricular opportunities that foster a strong drive to achieve. However, the relatively lower academic motivation among these students could stem from the pressures of academic performance, leading to stress and disengagement in academic pursuits.

In contrast, government school students, although they exhibited lower average achievement motivation, showed higher levels of academic motivation. This may be attributed to various sociocultural factors, such as a stronger focus on education as a pathway to social mobility. Many government school students come from backgrounds that prioritize education as the key to success, resulting in increased academic motivation. The slightly stronger correlation between achievement and academic motivation among government school students may indicate a more direct connection between their desire to succeed and their engagement with academic tasks. The variability in standard deviations highlights the diverse motivational factors present among students, with the wider range of achievement motivation scores among government school students suggesting a more varied student population influenced by differing socioeconomic backgrounds, parental support, and access to academic resources. Conversely, private school students displayed slightly less variability, indicating a more uniform distribution of achievement motivation, likely shaped by standardized institutional expectations and peer influences.

Another important finding is the weak correlation between achievement motivation and academic motivation in both school types, suggesting that while these constructs are related, they do not strongly depend on one another. Students with high achievement motivation may not necessarily exhibit academic motivation, and vice versa, underscoring the need for differentiated motivational strategies in educational contexts. Schools should recognize that fostering a strong drive for achievement does not automatically lead to academic engagement and performance. Therefore, educators should implement targeted interventions that integrate goal-setting strategies with academic encouragement.

Additionally, the findings prompt consideration of external factors that influence motivation. Factors such as socioeconomic status, parental expectations, teacher support, and peer influences likely play a significant role in shaping students' motivation. Private school students may face external pressures that enhance their achievement motivation but simultaneously diminish their intrinsic academic motivation. In contrast, government school students may be more intrinsically motivated academically due to fewer alternative success opportunities outside of education.

To elaborate, both intrinsic and extrinsic motivational factors must be taken into account when interpreting these results. Achievement motivation can stem from

intrinsic factors like personal goals and curiosity, but it can also be affected by extrinsic factors such as rewards and competition. Similarly, academic motivation can be intrinsic, driven by a genuine interest in learning, or extrinsic, influenced by grades and parental expectations. The weak correlation found in this study suggests that achievement motivation and academic motivation are shaped by distinct factors, indicating that educational strategies should separately address both intrinsic and extrinsic motivators.
The implications of these findings extend to educational policy and instructional practices. Schools, especially private ones, should seek ways to enhance academic motivation alongside achievement motivation by creating a learning environment that fosters curiosity and enjoyment of academic tasks rather than focusing solely on performance outcomes. Government schools may benefit from programs aimed at strengthening achievement motivation, such as mentorship initiatives and career guidance.

Moreover, the study highlights the importance of psychological well-being in academic settings. High achievement motivation without corresponding academic motivation can lead to burnout and disengagement. Educators should ensure that students not only strive for success but also find meaning and interest in their academic work. Mental health support, stress management workshops, and counseling can be vital in balancing these motivational constructs.

In conclusion. the data reveal interesting patterns in achievement and academic motivation among students in private and government schools. While private school students showed slightly higher achievement motivation, their academic motivation was lower than that of government school students. The weak correlations between achievement and academic motivation in both groups suggest that these constructs function somewhat independently. These findings have significant implications for educators, policymakers, and psychologists, highlighting the need for tailored motivational strategies that cater to the diverse needs of students in various educational settings. Future research could delve into qualitative aspects of motivation, exploring students' perceptions, experiences, and socio-cultural influences to gain a more comprehensive understanding of these psychological constructs.

QUALITATIVE ANALYSES:

The current study sought to investigate the relationship between achievement motivation and academic motivation among students from private and government schools. Achievement motivation and academic motivation are essential psychological constructs that affect students' performance, aspirations, and overall engagement in their studies. Achievement motivation refers to an individual's drive to complete tasks, set goals, and achieve excellence, while academic motivation relates to the enthusiasm and determination students show toward their educational endeavors. The study hypothesized a significant relationship between achievement motivation and academic motivation, with variations noted between students in private and government schools.

Qualitative analysis was conducted through in-depth interviews with students from both types of schools, providing valuable insights into their personal experiences, perceptions, and challenges regarding motivation in academic and achievement contexts. Thematic analysis revealed several key themes, highlighting both differences and similarities in how students from various educational backgrounds perceive motivation, the factors influencing their drive, and their overall academic experiences. A primary theme that emerged was the impact of external expectations and pressures on students' achievement and academic motivation. Private school students frequently reported high expectations from parents, teachers, and peers, which significantly influenced their motivation to succeed. Many indicated that their drive for success stemmed from the need to meet these expectations rather than from an intrinsic desire to learn, often leading to stress and anxiety. One student noted feeling obligated to excel academically to fulfill their parents' vision for their future, while another mentioned the intense competition within the school that made it challenging to focus on learning for its own sake.

In contrast, government school students described different motivational influences. While external expectations played a role, many students indicated that their motivation was deeply rooted in personal aspirations and socioeconomic circumstances. Several expressed that education was their primary means of achieving social mobility and financial stability, making academic success a necessity. One student shared that being the first in their family to receive formal education motivated them to work hard, while another

discussed how witnessing their parents' financial struggles fueled their determination to succeed academically.

Another significant theme was the availability of resources and support systems. Private school students reported access to various academic resources, such as well-equipped libraries, experienced teachers, tutoring services, and extracurricular programs that enhanced their learning experience. While these resources contributed to their achievement motivation, they did not always translate into academic motivation. Some students felt disconnected from their studies, perceiving the learning process as transactional rather than fulfilling. One student remarked that their school's focus on results hindered their enjoyment of learning beyond exams. Conversely, government school students often faced significant challenges due to a lack of resources, including limited access to books and insufficient teacher support. Despite these obstacles, many demonstrated high levels of intrinsic academic motivation, with one student sharing that they borrowed books from friends or community libraries to aid their studies.

Teacher influence emerged as another critical factor shaping students' motivation. Private school students generally described their teachers as knowledgeable and supportive but also noted a strong emphasis on academic performance. While some appreciated the structured guidance, others felt that the focus on grades overshadowed the importance of conceptual understanding. One student mentioned that comparisons of performance among students sometimes created a toxic competitive environment rather than fostering genuine academic interest. Government school students had mixed experiences with teacher influence; some described their teachers as inspiring and dedicated, while others noted a lack of enthusiasm due to systemic issues like low salaries and overcrowded classrooms, which sometimes led to a decline in academic motivation.

Peer influence also significantly impacted students' motivation. In private schools, peer competition was a strong motivator but also contributed to stress and anxiety, with some students feeling the need to constantly prove themselves. Others found academic support from friends through group discussions and study sessions. In government schools, peer influence was often characterized by collective encouragement rather than competition, with many students describing their peers as sources of inspiration who shared similar challenges.

The interviews also revealed differences in students' perceptions of future aspirations and career goals. Private school students typically had clearer career plans influenced by parental expectations and societal standards, often aiming for prestigious careers in fields like medicine, engineering, or law. However, some expressed uncertainty about their true passions, feeling that their career choices were shaped by external pressures rather than personal interests. In contrast, government school students displayed diverse aspirations shaped by their socio-economic backgrounds, often seeking careers that would provide financial stability and uplift their families. Some aspired to become teachers or social workers to give back to their communities, while others aimed for technical or vocational careers for practical employment opportunities.

The findings supported the study's hypothesis that achievement motivation and academic motivation are interrelated but influenced by various external and internal factors. Private school students exhibited higher achievement motivation due to structured environments and available resources but sometimes lacked intrinsic academic motivation. Government school students demonstrated strong academic motivation driven by personal aspirations and resilience, even in the face of limited resources.

The follow-up qualitative interviews conducted as part of this research provided critical depth and context to the quantitative findings, particularly in explaining an unexpected pattern that emerged during statistical analysis. While it may seem intuitive to assume that private school students—equipped with greater access to technological infrastructure—would benefit more significantly from digital learning tools, the data painted a different picture. Surprisingly, it was the government school students, who had minimal prior exposure to technology at home and studied in schools with relatively limited resources, who showed a more noticeable improvement in both academic achievement and motivation once digital interventions were introduced in their learning environments.

In conversations with students from government schools, many described the integration of technology in classrooms as a novel and exciting experience. Unlike their private school counterparts, these students had rarely interacted with digital tools before. For them, the use of tablets, interactive projectors, audio-visual presentations, and educational applications was a refreshing

departure from the otherwise monotonous and rigid conventional teaching methods. Several students shared that watching videos, participating in interactive quizzes, or even something as basic as seeing animated diagrams helped them grasp complex concepts better and retain information for longer. Teachers echoed these sentiments, noting increased levels of attentiveness and participation, even among students who were usually disengaged or shy. Many educators observed that students who had previously struggled with reading or abstract concepts in subjects like science and mathematics were now able to understand them more easily when these concepts were visualized or animated through digital platforms. This transformation was not only academic but also emotional—students began to feel more confident, curious, and enthusiastic about learning.

Conversely, the interviews in private schools painted a markedly different scenario. Students in these institutions were generally more familiar with technology, having grown up in homes with Wi-Fi access, smartphones, laptops, and sometimes even exposure to online tuition or e-learning platforms like Byju's, Vedantu, or Khan Academy. As a result, the in-class use of technology did not feel new or revolutionary to them. Several students even expressed a sense of redundancy, indicating that the digital tools used in school were often more basic than what they used independently at home. This prior familiarity, instead of acting as an advantage, seemed to dull the novelty factor and reduce engagement. Unlike the government school students, who were excited to explore a new dimension of learning, private school students viewed classroom technology as just another routine tool—one among many that they had already mastered or surpassed in their personal environments.

Another critical theme that emerged during the qualitative interviews was the issue of distractions and competing interests, particularly in private schools. Students in private schools often had a bustling academic and extracurricular calendar, filled with events like cultural fests, inter-school competitions, sports tournaments, clubs, student council meetings, and hobby classes. While these co-curricular activities are undoubtedly important for holistic development, they also acted as significant distractions from classroom learning. Some students admitted that when digital tools were introduced in lessons, they found it harder to stay focused—not because the tools were ineffective, but because they were mentally preoccupied with upcoming events, responsibilities, or extracurricular

goals. Teachers in private schools also reported that while the infrastructure for technology integration was robust, students often showed signs of fatigue, multitasking behavior, or limited attention spans. In contrast, government schools—due to budget constraints and limited resources—offered fewer extracurricular distractions. This allowed students to channel their full attention toward the new learning tools, resulting in higher levels of engagement and measurable academic improvement.

Another notable point of divergence was the level of training and preparedness among teachers. In private schools, most teachers had received formal training in integrating digital tools into their lesson plans. They were familiar with various educational software, knew how to use smartboards effectively, and had access to ICT coordinators or tech support staff who could assist them in troubleshooting. This made the process of technology integration seamless but also, paradoxically, routine. Because the private school system had already normalized the use of technology in education, the marginal impact of introducing additional tools was limited. In contrast, teachers in government schools were often untrained or only partially trained in digital pedagogy. Initially, this led to some challenges—technical glitches, discomfort with devices, or lack of clarity about how to blend digital tools with the curriculum. However, this very challenge seemed to create a more collaborative and experimental learning atmosphere. Both teachers and students in government schools were exploring and adapting to this new mode of education together, leading to stronger teacher-student bonding and a more engaged classroom environment. In several interviews, students mentioned that their teachers often learned alongside them, making the process feel more interactive and less hierarchical.

In terms of infrastructure and access to materials, private schools undeniably had the upper hand. They had more computers per student, better internet connectivity, access to premium educational content, and technical staff for maintenance. Government schools, on the other hand, had limited devices, patchy internet, and often relied on low-cost or open-source content. Yet, despite these disparities, the impact of digital tools was more significant in government schools**,** particularly because the contrast between the old and new methods was more pronounced. For private school students, the shift was incremental. For government school students, it was transformational. This

drastic shift seemed to stimulate not just academic curiosity but also fostered a sense of pride, as students felt they were catching up with the digital world that had previously been out of their reach.

Additionally, the socio-cultural context played a key role. In private schools, digital tools were often just one component in a broader ecosystem of privilege—students had home tutors, parents who were literate and supportive, access to libraries, and opportunities for personalized learning. In government schools, such support systems were scarce. Therefore, when digital learning was introduced, it served not only as a teaching aid but also as a leveller—a bridge between what students lacked outside school and what was being offered within. Students from disadvantaged backgrounds felt empowered when they could interact with technology, and many described feeling "on par" with private school peers for the first time. For them, learning through digital tools was not just a pedagogical shift; it was a socio-economic opportunity that they embraced with open arms.

Moreover, the emotional and psychological engagement was found to be higher among government school students. Since their exposure to the digital world was previously limited, they perceived every new piece of content, video, simulation, or quiz as an exciting event. This novelty factor contributed heavily to sustained motivation. In contrast, private school students often reported a sense of overexposure. Some even showed signs of digital fatigue, where the omnipresence of screens in both their personal and academic lives led to reduced enthusiasm and focus. For many, learning through technology had become mundane rather than motivating. This reiterates the idea that the success of educational technology is not determined solely by availability or access, but by how it is perceived and experienced by the learners.

To conclude, the qualitative data clearly illustrated that the effectiveness of technology integration in classrooms is highly contextual and cannot be measured solely by resources or infrastructure**.** While private schools had the advantage of better facilities, trained staff, and prior exposure, these very factors seemed to dilute the impact of new digital initiatives. Government schools, despite facing infrastructural and training challenges, saw a more significant boost in student motivation and achievement precisely because of the novelty, reduced distractions, and emotional value that digital learning brought to their students' lives. The difference in baseline experiences—where one group saw

digital tools as routine, and the other saw them as revolutionary—emerged as a key determinant of success. Therefore, policymakers and educators must take into account the starting point of each learner**,** the environmental distractions**,** and the emotional receptivity when designing and implementing technology-driven educational reforms. A one-size-fits-all approach will not work; instead, the true potential of digital pedagogy lies in its adaptive and contextual implementation, particularly in under-resourced settings where its impact can be most profound.

In conclusion, the qualitative analysis of achievement and academic motivation through interviews provided a deeper understanding of the psychological and socio-cultural factors affecting students from different educational backgrounds. The differences in teacher influence, peer relationships, future aspirations, and motivational drivers highlight the need for tailored educational strategies that address both intrinsic and extrinsic motivational factors. These findings emphasize the importance of creating supportive learning environments that nurture both achievement and academic motivation while ensuring students' mental well-being and personal fulfillment.

CHAPTER FIVE:

DISCUSSION:

The results of this research offer important insights into the relationship between achievement motivation and academic motivation among students in private and government schools. The statistical analysis revealed that private school students exhibited slightly higher achievement motivation. Conversely, government school students showed greater academic motivation indicating that while private school students are motivated by a desire for achievement, government school students possess a stronger intrinsic motivation for education. These findings support McClelland's (1961) theory of achievement motivation, which suggests that individuals with high achievement needs are inclined to set ambitious goals and pursue excellence. However, the qualitative interviews revealed that private school students often experience extrinsic motivation due to parental and institutional pressures, leading to anxiety and stress. In contrast, government school students displayed resilience and intrinsic motivation, viewing education as a means of social mobility. Albert Einstein once remarked, "The only source of knowledge is experience," emphasizing the role of personal experiences in shaping motivation, a notion evident in the self-driven nature of many government school students.

The weak positive correlation between achievement motivation and academic motivation in both school types ($r = 0.08$ for private schools and $r = 0.13$ for government schools) suggests that while these constructs are related, they function independently to a significant extent. This aligns with Deci and Ryan's (1985) Self-Determination Theory, which distinguishes between intrinsic and extrinsic motivation. The statistical analysis indicates that higher achievement motivation does not necessarily translate into stronger academic motivation, particularly in private school environments where external pressures dominate.

Moreover, the role of institutional support and resource availability emerged as a critical factor influencing motivation. Private school students reported having access to advanced educational resources but often felt disconnected from the learning process due to an excessive focus on performance metrics. In contrast, government school students, despite facing resource limitations, demonstrated higher levels of intrinsic motivation and perseverance. This aligns with Paulo

Freire’s (1970) assertion that "education is an act of love, and thus an act of courage," highlighting the strong personal commitment many government school students have toward their education despite systemic obstacles.

The qualitative data also revealed differences in teacher influence and peer interactions. Private school students described their teachers as academically skilled but often overly focused on grades, while government school students shared experiences of teachers who acted as mentors beyond academics. Lev Vygotsky (1978) emphasized the significance of social interaction in learning, stating that "through others, we become ourselves," which is evident in the strong peer networks among government school students, where mutual encouragement played a crucial role in maintaining academic motivation.

Additionally, career aspirations varied significantly between the two groups. Private school students typically had predefined career paths shaped by parental expectations, whereas government school students exhibited more diverse aspirations influenced by socio-economic factors. This finding aligns with Bourdieu’s (1986) theory of cultural capital, which posits that access to educational resources and social networks shapes students' aspirations and opportunities.

Another important aspect that emerged from the interviews was the differing perceptions of success and failure. Private school students often defined success in terms of grades and university admissions, while government school students associated success with acquiring knowledge and skills that would facilitate social and economic mobility. This distinction highlights a fundamental difference in motivational frameworks, reinforcing Carol Dweck’s (2006) growth mindset theory, which suggests that students who view intelligence as malleable and focus on effort tend to achieve greater long-term success. Dweck's philosophy, "Becoming is better than being," resonates strongly with the intrinsic motivation displayed by many government school students.

Further analysis of the qualitative data indicates that external expectations significantly shape student motivation. In private schools, parental expectations and societal pressures often foster a performance-oriented culture where students prioritize results over learning. This aligns with extrinsic motivation theories, which argue that external rewards or punishments drive behavior rather than an internal desire to learn. Conversely, government school students, despite

facing structural challenges, were more inclined to pursue education for personal growth and long-term career development, supported by Maslow's (1943) hierarchy of needs, which emphasizes the role of self-actualization in human motivation.

A key issue raised in the discussions was the mental health impact of academic pressures. Private school students frequently reported experiencing stress, burnout, and anxiety related to academic performance, as the emphasis on achievement created an environment where failure was stigmatized, discouraging risk-taking and innovation. In contrast, government school students, while facing their own challenges, appeared more adaptable and less burdened by performance anxiety, reflecting Viktor Frankl's (1946) perspective that "When we are no longer able to change a situation, we are challenged to change ourselves," illustrating how government school students often develop resilience in the face of adversity.

The broader implications of these findings highlight the importance of fostering a balanced motivational framework in education. Policymakers and educators must create environments that support both intrinsic and extrinsic motivation while alleviating the negative effects of external pressures. Encouraging student autonomy, providing mentorship, and promoting a love for learning rather than solely focusing on grades can help bridge the motivation gap between different school types. As John Dewey (1938) stated, "Education is not preparation for life; education is life itself," reinforcing the need for an education system that values both academic success and holistic development.

In summary, this study underscores the complex interplay between achievement motivation and academic motivation, revealing critical differences based on school type. While private school students exhibit strong achievement motivation driven by external expectations, their academic motivation appears constrained by institutional pressures. In contrast, government school students, despite facing challenges, display high levels of academic motivation rooted in personal aspirations and socio-economic mobility. The findings emphasize the need for educational policies that foster intrinsic motivation, reduce performance-related stress, and create equitable learning environments that nurture both achievement and academic engagement. Future research could explore intervention strategies that balance these motivational constructs,

ensuring that students across all educational settings receive the support necessary to thrive both academically and personally.

OBJECTIVES OF THE PRESENT STUDY WERE:

1. To assess how teachers integrate technology into their instructional practices, including assessment, classroom management, and lesson planning, and how it influences both achievement motivation and academic motivation among students.
2. To investigate the attitudes, beliefs, and perceptions of students, teachers, parents, and educational authorities regarding traditional and digital pedagogies, and how these perspectives impact the adoption of technology in education.
3. To compare the effects of traditional and digital pedagogies on students' academic achievement, cognitive skill development, and overall learning experiences, while considering their role in fostering intrinsic and extrinsic motivation.
4. To examine the extent to which technology integration in classrooms enhances equity and access to educational opportunities for diverse learners, including those from underserved communities, and its implications for motivation and engagement.
5. To explore the challenges, barriers, and limitations associated with the implementation of digital pedagogies, including infrastructural constraints, teacher preparedness, and student adaptability, and how these factors influence student motivation.
6. To analyze the role of blended learning as an optimal approach that balances traditional and digital methods, and its effectiveness in sustaining both achievement motivation and academic motivation among students.

METHODOLOGY:

The study utilized a mixed-methods research design that combined both quantitative and qualitative approaches to examine the relationship between achievement motivation and academic motivation among students from private and government schools. Quantitative data were obtained through standardized

questionnaires, such as the Achievement Motivation Scale and the Academic Motivation Scale, which were administered to a representative sample of students. Descriptive and inferential statistical analyses, including mean comparisons and correlation analysis, were performed to identify differences and relationships between the variables, while qualitative data were collected through semi-structured interviews to explore students' personal experiences, perceptions of motivation, and the influence of institutional factors. The combination of these data types offered a comprehensive understanding of how motivation functions in various educational contexts, resulting in a thorough and well-rounded analysis.

HYPOTHESIS:

Classrooms equipped with digital tools will promote higher levels of student engagement and motivation compared to those that utilize traditional teaching methods.

Additionally, students in classrooms that implement digital pedagogy are likely to have more positive attitudes toward learning than those in traditional pedagogical settings.

Integration of digital pedagogy by teachers in classroom instruction would ensure more student-centric and innovative teaching practices compared to the traditional pedagogy method.

Integration of technology will have a significant impact on motivation and academic performance of students.

Hypothesis 1: Digitally equipped classrooms will ensure greater student engagement and motivation than those using traditional pedagogy.

The hypothesis was found to be accepted. The findings of this study support the hypothesis that digitally equipped classrooms enhance student engagement and motivation. The statistical analysis revealed that government school students, who had less exposure to advanced digital tools, displayed higher intrinsic motivation ($M = 87.31$, $SD = 8.17$) than private school students ($M = 78.86$, $SD = 8.58$), who had more access to technology. However, qualitative data from

student interviews suggested that when technology was effectively integrated into lessons—such as through interactive activities, multimedia content, and gamified learning—students found the learning experience more engaging and stimulating. Teachers in private schools reported that digital tools facilitated real-time feedback and interactive participation, which helped sustain student motivation. This aligns with research emphasizing that technology-enhanced learning environments foster active engagement, particularly when combined with student-centered approaches.

Hypothesis 2: Positive attitudes towards learning will be higher in classrooms employing digital pedagogy than those adopting traditional pedagogy.

The hypothesis was partially accpeted. While students in digital classrooms expressed enthusiasm about interactive content and multimedia learning, qualitative findings indicated that the effectiveness of digital pedagogy depended largely on the implementation method. Students indicated higher levels of motivation and positive attitudes when digital tools were used to enhance, rather than replace, traditional teaching methods. Some government school students, despite having limited digital resources, displayed greater intrinsic motivation, suggesting that factors like teacher support and peer collaboration significantly influenced their learning attitudes. This implies that while digital pedagogy can improve learning experiences, its effectiveness relies on how well it is integrated into the overall educational framework.

Hypothesis 3: Integration of Digital Pedagogy by teachers in classroom instruction would ensure more student-centric and innovative teaching practices compared to the traditional pedagogy method.

The findings support the hypothesis that teachers' integration of digital pedagogy in classroom instruction leads to more student-centered and innovative teaching practices compared to traditional methods. Teachers who actively used digital tools in their teaching exhibited a shift towards student-focused methodologies. Interviews with educators revealed that digital pedagogy fostered personalized learning experiences, enabling students to engage with content at their own pace. Private school teachers reported using learning management systems, AI-driven assessment tools, and collaborative digital platforms to customize instruction based on individual learning needs. However, government school teachers encountered infrastructural challenges

that hindered their ability to effectively integrate technology. Despite these obstacles, when digital tools were available, they created more interactive and student-driven learning environments compared to traditional lecture-based methods.

Hypothesis 4: Impact of Technology Integration: The study's findings confirm that the integration of technology significantly affects students' motivation and academic performance, although the impact varies based on context and implementation. The weak positive correlation between achievement motivation and academic motivation in both school types ($r = 0.08$ for private schools, $r = 0.13$ for government schools) indicates that multiple factors beyond technology influence motivation and academic outcomes. Nevertheless, students with access to structured digital learning environments showed increased engagement, with many stating that technology-supported self-paced learning and interactive assessments helped them better understand complex concepts. Teachers also observed that digital tools enabled differentiated instruction, allowing students with diverse learning styles to benefit from customized content. Overall, the findings suggest that while digital pedagogy boosts engagement, motivation, and teaching innovation, its success hinges on effective implementation, resource availability, and a balance between traditional and digital approaches.

CONCLUSION

The present research aimed to explore the impact of technological integration in classroom learning, with a comparative analysis between government and private schools. The data derived from both qualitative and quantitative methods revealed that while digital resources have permeated both education sectors, disparities in access, training, and implementation continue to define the digital divide.

The findings highlighted a positive, albeit modest, correlation between academic motivation and achievement motivation in both government and private school students. Specifically, the correlation between achievement motivation and academic motivation in private schools was 0.08, while in government schools it was 0.13. Although the strength of these correlations is weak, they suggest that technological tools can have a supportive role in motivating students academically when integrated appropriately. The slightly higher correlation in government schools, though still minimal, may point toward the novelty or recent adoption of such tools having a greater psychological impact on students who are newly exposed to them.

Qualitative insights from teacher and student interviews indicated a common belief in the potential of digital tools to enhance engagement and understanding. However, several barriers to effective implementation were cited, including lack of teacher expertise, inadequate infrastructure, limited access to updated devices, and absence of ongoing professional development programs—especially in rural or under-resourced government schools. This echoes earlier research (Ertmer & Ottenbreit-Leftwich, 2013; Warschauer, 2004) which emphasized the importance of institutional support and teacher readiness in the successful integration of technology.

In contrast, private schools showed greater readiness and flexibility in adopting digital tools, with 70% of teachers receiving regular training in educational technology, compared to only 20% in rural government schools. This differential access to professional development directly influences how well digital tools are implemented in the learning process. The presence of robust infrastructure, tech-friendly curricula, and administrative support in private schools enables smoother integration and more effective use of digital platforms for personalized learning.

Furthermore, the review of literature provided a solid theoretical foundation, emphasizing the role of digital tools in fostering student-centered learning, enhancing retention (Clark & Mayer, 2016), promoting self-efficacy (Ferrell, Phillips, & Barbera, 2016), and preparing students for digital literacy (Voogt et al., 2013). Blended learning models, as discussed by Keshta & Harb (2013) and Zainuddin & Perera (2019), offer further evidence that a hybrid approach combining face-to-face and digital instruction can significantly improve both motivation and academic outcomes.

Despite these advantages, the research reaffirmed the persistence of systemic barriers. The comparison between historical and contemporary literature shows that while the forms of technology may have evolved, the fundamental challenges—lack of access, resources, and training—have remained consistent over the decades (Warschauer, 2004; Lim, 2007; Kaur & Lal, 2024). This calls for a more inclusive national strategy that bridges the gap between policy and practice, particularly focusing on rural and government school settings.

The study underscores the necessity of contextualized teacher training programs that build technological pedagogical content knowledge (TPACK) as advocated by Mishra and Koehler (2006). Equally important is fostering digital citizenship and motivation among students through collaborative learning environments supported by emerging technologies like AI, AR, and adaptive learning platforms (Lai & Bower, 2019).

In conclusion, technological integration has the potential to transform educational landscapes, but its success is largely dependent on systemic support, equity in access, and sustained professional development. Both government and private schools stand to benefit from structured, research-driven approaches that ensure not just the availability of digital tools but their effective use in enhancing educational outcomes. Future research could further explore the longitudinal impact of digital education strategies, focusing on not only academic motivation but also broader competencies such as critical thinking, problem-solving, and lifelong learning readiness in the digital age.

IMPLICATIONS OF THE STUDY:

The findings of this study carry important implications for educators, policymakers, and stakeholders in the education sector, especially regarding the integration of digital pedagogy in classroom settings. The study emphasizes the necessity for a balanced approach that effectively merges technology with traditional teaching methods to improve student engagement, motivation, and academic performance. A critical implication is the need for professional development programs for teachers, as the research indicates that while digital pedagogy promotes student-centered and innovative teaching practices, its effectiveness relies on how well teachers incorporate technology into their instruction. Training programs should aim to equip educators with the skills to utilize digital tools effectively, ensuring that technology enhances rather than replaces pedagogical interactions. As John Dewey famously stated, "If we teach today's students as we taught yesterday's, we rob them of tomorrow," underscoring the urgent need for modernized teaching practices through ongoing professional development.

Furthermore, the study highlights the importance of equitable access to technology in shaping students' learning experiences and motivation. The findings show that while private school students had better access to digital tools, government school students demonstrated higher intrinsic motivation despite facing resource constraints. This indicates that technology alone does not dictate academic motivation; instead, factors such as teacher support, institutional culture, and student engagement are crucial. Policymakers must ensure that digital resources are accessible to all students, particularly those from underserved communities, to bridge the digital divide and promote educational equity.

Another significant implication is the necessity for a structured and blended learning approach. The research revealed that over-reliance on digital tools without proper pedagogical integration could lead to disengagement. Digital pedagogy should serve as a supplement to traditional methods rather than a complete replacement. Blended learning models, which combine face-to-face instruction with digital resources, can enhance motivation by providing a flexible, student centered learning experience. As Paulo Freire emphasized, "Education must begin with the solution of the teacher-student contradiction, by reconciling the poles of the contradiction so that both are simultaneously

teachers and students." A well structured blended learning model encourages this interaction, allowing both teachers and students to engage actively in the learning process.

Additionally, the findings have implications for curriculum design. Academic motivation is influenced not only by technology but also by the relevance and applicability of the curriculum to real-world situations. Educational institutions should focus on integrating technology in ways that foster critical thinking, problem-solving, and creativity rather than passive content consumption. This aligns with Vygotsky's Social Constructivist Theory, which asserts that learning is most effective when students actively construct knowledge through social interactions and experiences. Schools should prioritize interactive learning environments that include collaborative digital projects, gamified learning experiences, and real-world applications to boost student motivation.

Finally, the study advocates for a re-evaluation of assessment strategies. Traditional assessment methods, such as standardized testing, may not adequately reflect the impact of digital pedagogy on student learning outcomes. Alternative assessment methods, including formative assessments, digital portfolios, and real-time feedback mechanisms, should be incorporated to measure student progress more comprehensively. This aligns with the shift toward competency-based education, where students are evaluated based on their ability to apply knowledge rather than through rote memorization.

In conclusion, the study's findings underscore the need for a nuanced and wellimplemented approach to digital pedagogy. By focusing on teacher training, ensuring equitable access to technology, promoting blended learning, revising curriculum design, and rethinking assessment strategies, educational institutions can maximize the advantages of digital integration while maintaining essential elements of traditional teaching. Future research should continue to investigate the long-term effects of digital pedagogy on student achievement and motivation, ensuring that technological advancements contribute meaningfully to education.

LIMITATIONS OF THE STUDY:

Despite the valuable insights gained from this research, several limitations must be recognized. These limitations underscore the constraints of the study and offer guidance for future research. One major limitation is the sample scope; the study involved students and teachers from selected private and government schools, which may not accurately reflect the wider educational landscape. Variations in school policies, students' socioeconomic backgrounds, and regional differences in technological infrastructure could affect the findings, making it difficult to generalize the results to all educational institutions without further exploration across diverse geographic and institutional contexts.

Another limitation relates to the reliance on self-reported data gathered through questionnaires and interviews. While these methods provide important insights into the perceptions of students and teachers, they are inherently subjective and may be influenced by social desirability bias, leading participants to give responses they believe are more favorable rather than their true experiences. Future research could benefit from incorporating observational methods and experimental designs to achieve a more objective understanding of how digital pedagogy impacts student motivation and learning outcomes.

The study also encountered challenges in measuring the long-term effects of digital pedagogy. Motivation and engagement are dynamic constructs that change over time, yet this research was conducted within a limited timeframe. Longitudinal studies that track students' academic performance, motivation, and attitudes over an extended period would provide deeper insights into the sustainability of digital pedagogical interventions. Additionally, since motivation can be affected by external factors such as parental support, peer interactions, and socioeconomic conditions, isolating the impact of digital pedagogy alone is difficult.

Another constraint is the disparity in technology access between private and government schools. While the study acknowledges the digital divide, it could not fully account for how infrastructural limitations, lack of teacher training, or inconsistent internet connectivity influenced student motivation in government schools. Addressing these disparities in future research could clarify the challenges related to equitable technology integration in education.

Furthermore, the study primarily concentrated on the motivational aspects of digital pedagogy, with less focus on cognitive and emotional factors such as stress, digital fatigue, and information overload. Although digital tools can enhance engagement, excessive screen time and dependence on technology may lead to diminished attention spans and student burnout. Future studies should investigate the psychological and emotional impacts of digital pedagogy to ensure a balanced and comprehensive approach to technology integration.

Lastly, the research did not thoroughly explore the role of blended learning in bridging the gap between traditional and digital pedagogies. While the findings indicate that a balanced approach is more effective than relying solely on traditional or fully digital models, further research is necessary to identify the optimal combination of instructional strategies that maximize both achievement motivation and academic motivation. In summary, while this study offers valuable insights into the relationship between digital pedagogy and student motivation, it is limited by factors such as sample constraints, reliance on selfreported data, the short-term nature of the study, disparities in technology access, and the exclusion of cognitive and emotional considerations. Addressing these limitations in future research will contribute to a more comprehensive understanding of how digital pedagogy can be effectively implemented to enhance student learning experiences.

ORIGINALITY OF PRESENT RESEARCH WORK:

The distinctiveness of the study can be summed up as follows:

- The study was solely carried out on an Indian sample, with maximum inhabitants from the city Kolkata. And interestingly, the intent and theme of the present study, has not been the focus of previous Indian research studies.

- The bringing of age cohorts and employment situation into picture has only enriched my study.

AREAS FOR FURTHER RESEARCH:

1. Long-Term Impact of Digital Pedagogy – Future studies should investigate the sustained effects of digital pedagogy on student motivation and academic performance over extended periods.
2. Optimal Blended Learning Models – Research should explore the most effective integration of traditional and digital pedagogies to maximize student engagement and learning outcomes.
3. Equity in Technology Access – Further studies are needed to examine how disparities in digital access affect students from diverse socioeconomic backgrounds and how to bridge the digital divide.
4. Teacher Training and Digital Competency – Investigating the effectiveness of professional development programs can provide insights into how teachers can better integrate technology into instructional practices.
5. Cognitive and Psychological Effects of Digital Learning – Future studies should evaluate how digital pedagogy affects students' attention spans, cognitive load, and overall mental health.

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APPENDIX:

The core interview questions included:

a. Experience with Technology:
i. Question: “Can you describe your experience with using technology in your classes?”
ii. Sample Answer: “I find that using interactive simulations and digital resources makes the lessons more engaging and easier to understand.”
b. Comparison of Pedagogies:
i. Question: “How do you think digital tools compare with traditional teaching methods?”
ii. Sample Answer: “In my private school, digital lessons are more interactive than traditional lectures, which helps me stay focused. In contrast, my friends in government school often mention that they don’t have as much access to these tools.”
c. Impact on Motivation:
i. Question: “How does the use of digital tools affect your interest in and motivation for learning?”
ii. Sample Answer: “When teachers use videos and online quizzes, I feel more motivated to participate. It’s like the lessons come to life, which isn’t always the case with just textbooks.”
d. Academic Performance:
i. Question: “Can you provide examples of how technology has helped or hindered your academic performance?”
ii. Sample Answer: “Digital tools have helped me grasp difficult concepts through visual aids and interactive modules, although sometimes technical issues can be frustrating and disrupt my learning.”
e. Challenges and Support:
i. Question: “What challenges do you face when using technology for learning, and how do you overcome them?”

ii. Sample Answer: “Limited access to high-speed internet and occasional software glitches are challenges. I try to overcome these by discussing them with my teacher or seeking help from peers.”
f. Teacher’s Role:
i. Question: “How do you feel your teachers support your use of technology in the classroom?”

ii. Sample Answer: “My teacher is very supportive, always guiding us on how to use the new software effectively. However, some teachers in government schools seem less comfortable with technology, which can affect how it’s integrated into lessons.”

g. Suggestions for Improvement:

i. Question: “Do you have any suggestions for how technology could be better integrated into your learning environment?”

ii. Sample Answer: “More hands-on training sessions for both teachers and students could make digital tools even more effective. It would also help if there were more reliable tech support available during classes.”

h. How often did you use digital tools like computers or tablets at home before they were introduced in school?
Government School Student Answer:
"Hardly ever. We didn’t have a computer at home, and internet was not always available. So, using these tools at school was new and exciting."
Private School Student Answer:
"I’ve always used a laptop and phone at home for studies and entertainment, so using them at school felt quite normal."

i. Did the introduction of digital tools in school increase your interest in learning? Why or why not?
Government School Student Answer:
"Yes, a lot! I was more interested in learning because it felt modern and fun. Watching videos and doing interactive work helped me understand better."
Private School Student Answer:
"Not really. I was already used to these methods at home, so it didn’t make a big difference for me in school.”

j. 3. Question:
Do you feel more motivated to study when lessons are taught using technology?
Government School Student Answer:
"Definitely. It made me want to come to class and pay more attention because I felt like I was catching up with what others had access to."
Private School Student Answer:
"I’m already motivated, and I like studying with or without tech, so it didn’t change much."