International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Impact of Digital Learning on the Academic Performance of Secondary School Students

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Abstract

In the 21st century, educational methods have evolved from traditional blackboards to digital platforms, shifting classroom dynamics from teacher-centered approaches to student-centered digital communication. The integration of computers, mobile devices, and social media has become essential in the learning process. Unlike conventional classroom settings, which often limit communication between teachers and students, digital learning provides students with a wealth of resources for communication and knowledge acquisition. Mastery of basic digital skills and technology facilitates easier learning and exploration of information. Positive attitudes and motivation significantly enhance students' academic performance and engagement in active learning. Additionally, family support plays a vital role in this digital learning environment, serving as a crucial element in maintaining a balance among family, teacher, and student interactions. This study involved 102 students from various government schools in grades 8, 9, and 10, comprising 53 female and 49 male students. It examines the influence of digital learning on academic achievement, students' prior computer skills, the motivational impact of digitalization, perceptions of digital methods, and the effects of teacher-student relationships. Data were analyzed using the Statistical Package for Social Science (SPSS) version 20. The findings indicate no significant difference in academic achievement between male and female students.

KEYWORDS: Digital learning, Motivation, Perception, Students, Computer Skills.

Objectives

- To investigate the significant differences in academic achievement between male and female students.
- To explore the role of students' perceptions of digital learning.
- To assess the impact of learning motivation on students' engagement with digital learning.

HYPOTHESES

- There is no significant difference in academic achievement between male and female students.
- There is a positive correlation between perceptions of digital learning and students' overall engagement with digital education.
- Higher motivation scores are associated with positive effects on students' digital learning experiences.

Introduction

Early internet technologies, such as email, web pages, and newsgroups, have enhanced the delivery of knowledge in traditional classrooms. With the advent of Web 2.0 technologies, including blogs, wikis, and

social networking sites, information is increasingly connected to individuals within a network. This evolution in technology is poised to transform the educational landscape significantly.

Digital learning represents a policy framework that promotes both full-time and part-time access to online education. It removes the necessity for seat-time requirements and advocates for broader broadband access. Additionally, digital learning facilitates student access to devices like smartphones and tablets, enabling a transition to digital instructional materials (Bailey et al., 2013). Activities within social networks engage students in meaningful processes, while effective pedagogical practices and technology use naturally enhance student motivation. Internet and social networking tools offer students opportunities to seek information, gather resources, communicate, create understanding, and assess outcomes. Students who embrace self-directed learning foster an active learning environment, as noted by Batchelder (2010).

Types of Digital Classrooms

Digital classroom applications encompass web-based learning, computer-based learning, virtual classroom experiences, and digital collaboration. Content can be delivered through various mediums, including the Internet, intranet/extranet, audio or video recordings, satellite TV, and CD-ROMs. Learning can be self-paced or instructor-led, utilizing diverse media such as text, images, animations, streaming video, and audio. Terms like CBT (Computer-Based Training), IBT (Internet-Based Training), and WBT (Web-Based Training) refer to different forms of digital classrooms.

Digital classrooms can be categorized into two types. The first is the synchronous digital classroom, where each student is equipped with a computer and can participate online, while the teacher utilizes advanced technology to facilitate the learning process. The second type is the asynchronous digital classroom, allowing students to engage in learning via the internet at their convenience, from any location. This student-centered approach leverages online resources to promote information sharing beyond the limitations of time and space among a network of individuals. Asynchronous learning combines self-study with online interactions to enhance educational experiences, applicable in both traditional on-campus settings and distance education. Resources supporting asynchronous learning include email, electronic mailing lists, threaded discussion systems, online forums, and blogs.

How It Works

The most effective and practical approach identified in this study was the development of an integrated system. This system combined all the available technologies within the institution. Following several field trials and the implementation of digital content, the final design of the electronic classroom primarily featured two types of outputs: coaxial and digital signals. These signals were generated and transmitted from a control room, referred to as the Knowledge Centre, which was equipped with a server, two computers, and four channels for video lectures and programs. The signals were distributed through a local area network established in all classrooms. Each classroom was outfitted with display systems capable of receiving both signal types, including large screen televisions, computers, projectors, backup power supplies, and other networking devices.

Recognizing the significance of educational software (tools and applications) and digital content (learning materials) is crucial for maximizing the benefits of substantial investments in hardware and infrastructure. Member countries across primary, secondary, and tertiary education levels have primarily focused their expenditures on hardware and networking, with minimal investment in software and content. Although this trend may shift, teachers frequently express concerns about the lack of relevant materials. The rise of

digital education has mirrored broader market trends, where advancements in hardware have been accompanied by the emergence of commercial software designed to leverage new opportunities. A diverse array of software and digital content is utilized in education, much of which was not specifically created for educational settings. This includes general tools, teacher resources, communication platforms, computer-assisted instruction, integrated learning systems, assessment tools, and management software. Once a school is networked, the Internet model for delivering digital content becomes appealing. Many materials are available for free (though this may change), and they can be easily accessed, barring any downloading issues. Even when materials are not free, schools often have the opportunity to preview products before purchasing, addressing a longstanding challenge in selecting digital content, and in some cases, they can receive updated versions at no additional cost. Websites can be accessed from any device, and they are not susceptible to damage or loss due to user actions.

Learning Through Technology

Many education systems are still in the early stages of recognizing the importance of digital learning and integrating it into schools. With numerous competing priorities for limited resources, there has been only a modest commitment to adopting digital learning materials and techniques. Progress is just beginning in organizing the development of professional digital competence for teachers. The slow adoption of digital learning in education has resulted in a lack of commercial understanding of specific curriculum needs, leading to an underdeveloped market. Large companies often find the broader and less demanding home market easier to target, while smaller, education-focused companies may lack the financial resources to develop specialized products on a speculative basis. There is no clearly defined target for product design within rapidly evolving delivery systems, and pedagogical research and practical experience are only starting to provide insights on effective approaches.

Digital learning serves as an effective teaching method that enhances students' learning experiences. It emphasizes high-quality instruction, access to challenging content, feedback through formative assessments, and opportunities for self-paced learning. Digital classrooms are essential for promoting and improving traditional teaching and learning methods. They require a shift from a teacher-centered to a student-centered environment, where instructors adopt multiple new roles. Integrating technology into the classroom can foster a better understanding of fundamental concepts when applied appropriately. Digital classrooms encompass all forms of electronically supported learning and teaching.

The most successful learning environment is characterized by a vibrant collaboration between home and school, blending formal and informal education, as well as the roles of teachers and students. This highlights the challenges faced by students with limited resources at home, particularly those affected by the "digital divide."

The school is equipped with a local network, an Internet server, and a mail server, connecting all classrooms, group rooms, the teachers' lounge, and select activity spaces. Both teachers and students have responded positively to this initiative. The enthusiasm from parents is so significant that private schools are starting to implement similar strategies.

Added Value of Digital Learning

Many digital educational resources merely replicate traditional learning methods in a technological format, such as displaying text from books on a screen. This approach offers minimal enhancement, primarily allowing for digital manipulation or downloading of materials, while often lacking the editorial quality

found in printed texts. However, advancements in computer speed and memory have introduced a plethora of possibilities, including extensive databases of factual and visual content, as well as interactive features that foster engagement between learners and programs. As technology continues to evolve, the scope for interactivity will expand, facilitating more complex interactions and deeper exploration of content. Simulations can now present real-world scenarios in innovative ways, allowing students to create and assemble their own projects by integrating various media and cutting-edge content. This highlights the "value-added" aspect of quality in digital materials, emphasizing their ability to offer educational resources and tasks that would otherwise be unattainable.

The Role of Teachers and Students in Digital Learning

When teachers lack experience in effective learning practices, it becomes challenging to foster productive learning environments in their classrooms. Both teachers and students should have a clear understanding of their roles and the context of learning, as this mutual comprehension is vital for the educational process. The classroom experience begins with teachers designing lessons that incorporate technology in authentic and meaningful ways. Technology should be utilized to enhance the curriculum rather than dominate it. When teachers successfully integrate technology into their teaching, both they and their students can reap its benefits.

Digital learning management can streamline the teaching and learning process, necessitating a review of the infrastructure needed to support these practices in community colleges. Teachers are increasingly required to take on the demanding role of managing digital learning environments, which calls for a diverse set of technical and pedagogical skills. Continuous professional development is essential to keep pace with technological advancements and their applications. Collaboration through electronic networking with colleagues from various educational institutions can serve as both a catalyst for professional growth and a means to achieve it. Without sufficient investment in teacher training and professional development, effective integration of technology in schools is unlikely to succeed.

One of the key advantages of certain digital learning formats is their ability to create a more open environment that encourages autonomous learning, supported by teacher guidance. Educators will collaborate with one another to share expertise, focusing on the specific needs of individual students and small groups. Rather than delivering direct instruction, teachers create an environment conducive to successful learning, serving as sources of inspiration and support.

Digital learning can accommodate differentiated activities for diverse learners within a single classroom. For instance, a teacher might use software to provide challenging tasks for specific groups, allowing them to dedicate more time to work individually with other students. This approach enriches the learning experience, both in terms of the materials used and the creative outputs produced by students. The benefits extend beyond multimedia learning, helping to address various learning styles.

Student engagement often increases in a digital environment, particularly with appropriate teacher support. Educators recognize that one of the significant advantages of technology is its ability to provide students with immediate feedback on their progress. For example, a teacher might divide each subject into modules, guided by national standards that outline what should be taught, the duration of each module, and sometimes the recommended teaching methods. These guidelines also specify when each module should be completed during the term. Digital learning can expedite this process, enabling subjects to be completed within the designated timeframe.

Advantages of Digital Learning for Students

Digital learning fosters deeper understanding and enhances the relationship between students and teachers, as well as among students themselves. This approach encourages the sharing of ideas, experiences, and research. It benefits all learners, particularly those who may struggle with traditional learning speeds, as well as those who excel quickly. Unlike traditional classrooms, which are confined by time and location, asynchronous digital classes offer flexibility and accessibility.

In traditional settings, the primary source of knowledge is the teacher; however, digital learning expands this source to include a wealth of information beyond the classroom and even across borders. Another significant advantage of digital classrooms is their open and flexible nature, which promotes opportunities for in-depth learning. The conventional learning process-listening, memorizing, synthesizing, and interpreting-can often feel tedious. In contrast, digital tools allow for repetition, practice, and the freedom to make mistakes, enhancing the learning experience.

In a digital classroom, students can focus entirely on their learning without the distraction of taking notes or worrying about spelling. They can quickly exchange notes and share knowledge with peers from various universities. Additionally, digital learning increases access to devices like smartphones and tablets, facilitating the transition to digital instructional materials (Bailey et al., 2013). Engaging in social networks provides students with meaningful, active learning experiences. Effective teaching practices combined with technology naturally motivate students.

The internet and social networking tools offer students opportunities to gather information, create their own materials, communicate, derive meaning, and assess their outcomes. Self-directed learning fosters an active learning environment, enhancing students' motivation to improve their educational quality. As a result, students should be encouraged to explore new technologies to enrich their learning experiences, allowing them to investigate independently without constant teacher intervention.

For instance, in subjects like science and mathematics, students benefit from visualizing fundamental physical concepts through animations and conducting virtual experiments to understand the laws of motion. While this does not replace the need for hands-on laboratory work, it adds an element of excitement and creates a collaborative classroom atmosphere. With software capable of quickly and accurately solving algebraic functions, students can concentrate on grasping concepts rather than getting bogged down by repetitive calculations. Visual representations simplify complex functions, while mathematical modeling in biology can illustrate population changes over time based on varying initial conditions. Simulations and videos can effectively demonstrate how the human body operates, how cells function, and how oxygen is transported.

Digital learning materials exhibit significant variation in terms of subject matter, the appropriateness of learning sequences, and user-friendliness. However, when executed effectively, they are highly appreciated and valued by students. These materials provide an alternative method of delivery, offering learners benefits such as convenience, speed, capacity, motivation, and appeal. They can fulfill diverse educational objectives and methodologies, some of which extend beyond conventional curricula. When utilized thoughtfully, digital resources can enhance knowledge acquisition, language and communication skills, collaborative learning, and foster understanding and respect for others. Engaging with real-world problems helps students develop the ability to determine when and how to apply their existing skills. This approach to personal knowledge construction serves as a valuable model across various subjects, suggesting that an effective learning program should incorporate projects, group work, problem-solving, reflective writing, and other activities that encourage meaningful thinking.

As students take on more responsibility for their own learning and assessment, they cultivate expertise in the process. Digital tools enable them to evaluate their own progress, allowing them to determine if they have mastered a new skill or possess the necessary knowledge to advance to subsequent tasks. Such methods instill in students the belief that they can improve. Immediate feedback can engage students who might otherwise lack interest in school. By developing the habit of self-assessment, students acquire an essential skill, particularly in a job market that increasingly demands self-evaluation of preparedness. As students assume greater responsibility for their own assessments, the pace of learning becomes more personalized.

Motivation

Numerous factors contribute to effective digital learning practices, with motivation being a key element. Motivation is central to successful learning, as motivated students are eager to engage in the learning process. It can be defined as an individual's internal needs, desires, and wants, which shape their attitude (Bekele, 2010).

Research by Chantorn et al. (2011) indicates that student satisfaction and motivation in online learning environments supported by mobile technologies are likely to increase. In the context of mobile learning, MacCallum (2009) demonstrated that motivation significantly influences how learners utilize technology. He found that students are more inclined to use mobile technology when they believe it can enhance their performance. Consequently, motivation is shaped by their satisfaction, which in turn affects the relationship between perceived usefulness and the performance of mobile learners (Chaiprasurt et al., 2011). Therefore, the content and perceived usefulness of applications positively impact learner satisfaction. Additionally, factors such as ease of use, content quality, and layout design also positively influence the behavior of mobile learners, as evidenced by previous research (Miao, 2012).

Literature Review

The current state of research in India regarding the instructional use of computers and technology at the school level can be characterized as being in a “developmental phase.” This is largely due to the late introduction of computers in education, which began in 1984 with the launch of the Computer Literacy and Studies in Schools (CLASS) project aimed at senior secondary students. Prior to this initiative, computers in India were predominantly utilized for the storage and processing of scientific and research data. Although the integration of computers into school settings is gradually increasing, their application in classroom learning remains limited. Most often, computers are employed for teaching programming languages and other applications rather than serving as tools for learning various subjects.

Several authors have identified reasons for the limited research on the use of technology in classroom learning. Adinarayana and Anadan (1992, 93) noted that the scarcity of research on Computer Assisted Instruction (CAI) in India can be attributed to several factors, including a lack of computer proficiency among teachers to develop CAI programs across different subjects, insufficient infrastructure such as adequate hardware and software, trained personnel, appropriate laboratories, reliable power supply, and skilled educators-all of which are essential for the advancement of CAI.

Gupta (1992) succinctly highlighted the need to effectively integrate computers into classroom learning, citing several challenges: a) a shortage of trained teachers, b) a lack of student-friendly software, c) inadequate hardware, d) insufficient initiative from teachers, e) reluctance from parents and students to

move away from traditional learning methods, f) a lack of graphical and multimedia resources for effective CAI, and g) inadequate maintenance and upgrading of computer systems.

Despite these challenges, various experiments and studies have been conducted in India over the past two decades to assess the effectiveness of computers and other technologies as educational tools. Below is a summary of some notable studies that provide insight into this area.

Lalitha and Shailaja (1986) examined Computer Assisted Instruction (CAI) in comparison to traditional teaching methods, concluding that while CAI was more effective in imparting knowledge, it did not significantly enhance understanding.

Gupta (1985) investigated the effectiveness of Computer Aided Instruction in Chemistry and found it to be a more effective teaching method for ninth-grade students, resulting in greater knowledge gains.

Padma and Chakraborti (1991) explored high school students' attitudes toward computer education and discovered significant differences between boys' and girls' attitudes. However, they found no notable differences in attitudes toward computer education between tribal and non-tribal students.

Numerous studies have explored the effectiveness of digital technology in education, including web pages, social networks, mobile applications, and eLearning platforms. According to Sendall et al. (2008), Web 2.0 refers to a new generation of collaborative Internet applications. In contrast, Web 1.0 represents its earlier phase, characterized by static, centralized content that was primarily for reading and individualized use. Today, Web 2.0 is more dynamic, service-oriented, user-generated, and socially interconnected. The key distinction between Web 1.0 and Web 2.0 lies in the increased engagement of consumers in creating and managing content, which fundamentally alters the nature and value of the information available.

In their 2012 research, Mool Raj and Arun K. Gupta demonstrate that electronic classrooms, as a teaching technology, can enhance the instruction of General Science and elevate student achievement based on their grade and age.

The findings indicate that an electronic classroom can be understood as a space equipped with advanced technologies that facilitate learning both within and beyond traditional classroom settings through networking. Examples include the Italian Electronic Classroom (1981), which aimed to provide free online access to useful information technology; the Electronic Classroom of Tomorrow (ECOT, 2000), an online public community school supported by the Lucas County (Ohio) Educational Service Centre; and Blackstock School (2009), which features an interactive learning environment. Other variations include electronic libraries, Technology Supported Classrooms, ICT Enabled Classrooms, Technology Enriched Classrooms, and Wired Classrooms. These represent the evolution of classrooms that were once equipped solely with audiovisual aids.

Current and emerging educational technologies offer a platform for innovative teaching and learning methods. Research indicates that teachers and learners generally experience positive outcomes when utilizing these technologies in the classroom. To promote technology use in India, various initiatives have been implemented to enhance the effectiveness of the teaching and learning process across different educational levels. Notable projects include the CLASS Project (1984-85), the Digitising the Black Board project (2000), Virtual Classroom Technology on EDUSAT for Rural Schools (ViCTERS, 2001), the launch of the “EKLAVYA” channel (2003), the “Vidya Vahini” Pilot Project (2003), the introduction of technology through the National Curriculum Framework (NCF, 2005), and the Sakshat initiative: National Mission on Education through Information and Communication Technology (NMEICT, 2009), among others.

The study employed the Students Questionnaire on Effectiveness of Electronic Classroom (SQEEC) as a reliable tool (De Vellis, 1991) to assess the effectiveness of electronic classrooms in teaching General Science. Additionally, the Technology-Rich, Outcomes-Focused Learning Environment Inventory (TROFLEI) was utilized to evaluate students' perceptions of their actual and preferred learning environments in technology-supported science classrooms at the secondary level in India.

An attitude scale derived from the Test for Science Related Attitudes (TOSRA) was also used to gauge students' attitudes toward science, while the Questionnaire on Teacher Interaction (QTI) was employed to analyze teacher-student interactions in a technology-enhanced science classroom.

The TROFLEI instrument, designed to assess the psychosocial learning environments of technology-rich, outcomes-focused settings, has shown high reliability and validity, although it has not been widely used, particularly in India. Given the increasing integration of technology in Indian classrooms, the application of TROFLEI is timely.

The QTI, a historically significant instrument, has been effectively used to assess students' perceptions of teachers' interpersonal behaviors and can also explore the relationship between these perceptions and students' attitudes toward science and cognitive outcomes. This questionnaire has been validated in various countries and is recognized for its reliability and validity in future research. Since the current study is conducted in India and the QTI has only been used once to examine students' perceptions of their teachers' interpersonal behavior in science classrooms, this research will further validate the QTI's application in studying student-teacher interactions in technology-supported science environments.

Numerous studies have investigated the effectiveness of digital technology in education, encompassing web pages, social networks, mobile applications, and eLearning platforms. According to Sendall et al. (2008), Web 2.0 represents a new generation of collaborative Internet applications, contrasting with Web 1.0, which was characterized by static, centralized content primarily for reading and individual use. Today, Web 2.0 is more dynamic, service-oriented, user-generated, and socially interconnected. The primary distinction between Web 1.0 and Web 2.0 lies in the enhanced engagement of users in creating and managing content, fundamentally transforming the nature and value of available information.

Methodology

The study was conducted with a sample of 50 students from different Private schools studying 8th, 9th, and 10th grades. Of the 50 students, 26 are Female students and 24 are Male students. These students responded to a questionnaire.

The study employed a survey methodology with a 45-item questionnaire, using scales such as:

- Teacher-Student Relationship Questionnaire (TSRQ)
- Technology-Rich, Outcomes Focused Learning Environment Inventory (TROFLEI)
- Test of Science Related Attitudes (TOSRA)
- Questionnaire on Teacher Interaction (QTI)
- Students' Questionnaire on Effectiveness of Electronic Classroom (SQEEC)

The questionnaire consisted of:

- Demographic and Personal Information
- 10 items in Prior Computer skills and support at home
- 15 items in Teacher-Student Relationship Questionnaire (TSRQ)
- 10 items in Motivation towards learning Science and Mathematics in a technology-supported classroom

- 10 items in Perception Towards Digital Learning

The scales used a Likert scale method with two-point (Yes/No) and five-point scales (Strongly Disagree to Strongly Agree), where 1 represented "Strongly Disagree" and 5 represented "Strongly Agree."

Statistical Analysis

The data were analyzed using Statistical Package for Social Science (SPSS) version 20. The following statistical methods were employed:

- t-test to assess significant differences in academic achievement between Male and Female students.
- Pearson Correlation to assess the relationship between Perception towards Digital Learning and Students' overall Digital Learning.
- Pearson Correlation to assess the relationship between Learning Motivation and Students' overall Digital Learning.

Table-1

Perception Towards Digital Learning and Teacher-Student Relationship

		PD_Score	TS_Score
PD_Score	Pearson Correlation	1	.430**
	Sig. (2-tailed)		.002
	N	50	50
TS_Score	Pearson Correlation	.430**	1
	Sig. (2-tailed)	.002	
	N	50	50

Interpretation: There is a moderate positive significant correlation between Perception Towards Digital Learning (PD Score) and Teacher-Student Relationship (TS Score) with a correlation of 0.430, which is significant at the 0.01 level. This means that as Teacher-Student Relationship improves, Perception Towards Digital Learning also improves.

Hence improving the results of student and their Perception Towards Digital Learning. Thus, the hypothesis_1 is accepted.

Table 2: Student's Motivation towards Learning and Students' Digital Learning Score

		SM_Score	Total_score
SM_Score	Pearson Correlation	1	0.875**
	Sig. (2-tailed)		.000
	N	50	50
Total_score	Pearson Correlation	.875**	1
	Sig. (2-tailed)	.000	
	N	50	50

Interpretation: A strong positive significant correlation (0.875) exists between Student's Motivation towards Learning (SM Score) and Digital Learning score (Total_score), significant at the 0.01 level. This indicates that as student motivation increases, their digital learning performance also improves.

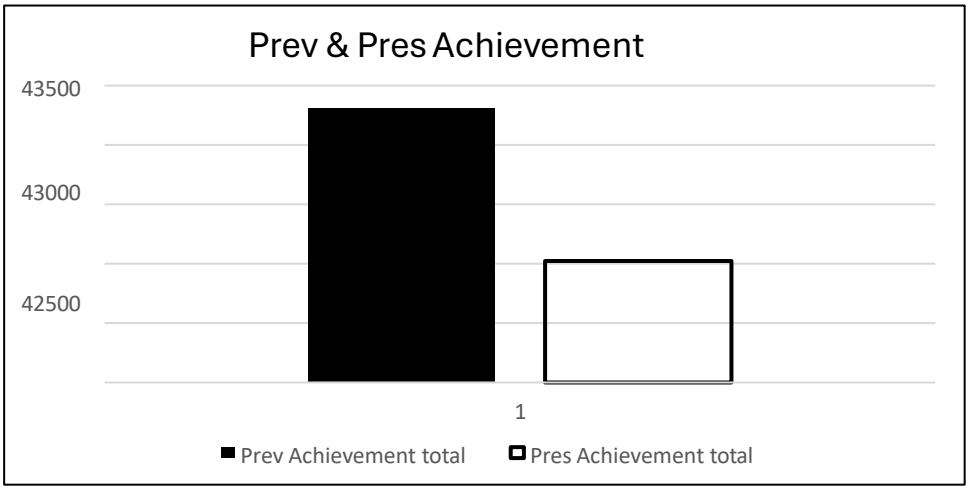
Hence improving the results of Student's Motivation towards learning. Thus, the hypothesis_2 is accepted.

Table 3: Present Year Students' Average Academic Achievement

Gend er	N	Mean	Std. Deviation	Std. Error Mean	t-test for Equality of Means t
M	24	330.25	5235	10.75	-1.725
Present_Year_Student _Avg					
		348.12			
F	26		79.58	15.62	-1.895

Interpretation: The average academic achievement for Male students is 330.25, and for Female students is 348.12. The t-test values are -1.725 for Male and -1.895 for Female, with no significant difference found between Male and Female students in terms of average academic achievement. Therefore, hypothesis_3 is accepted.

Figure -1



From the above figure, it is observed that, there is a significant difference identified in Student achievement of Previous Academic year and Present Academic year, the present year score is low compared to previous year.

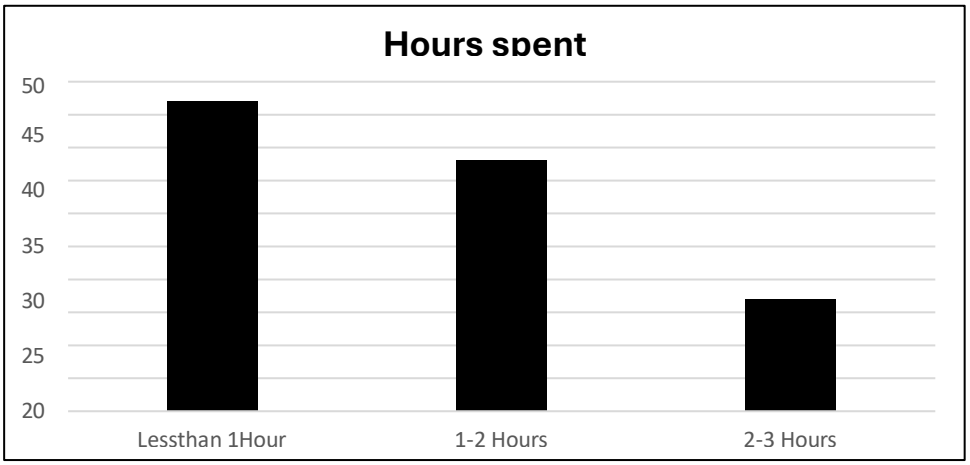
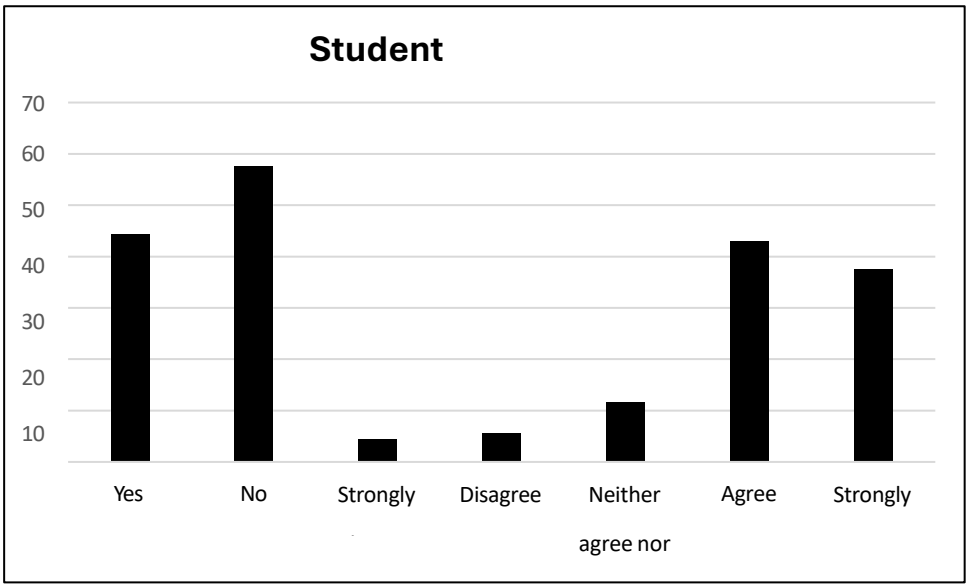


Figure -2

From the above figure, the amount of time spent on digital classes is high at “Less than 1 Hour” and “1-2 Hours”, that is very less time and attention is given to Digital classes.

Figure -3



The data presented in the figure indicates that a significant number of students lack access to computers or laptops at home. However, they receive strong family support and engage with educational programs from channels like Discovery, National Geographic, and Animal Planet, which are related to science. Students express a keen interest in participating in more electronic classes in the future.

The teacher-student relationship is characterized by encouragement, recognition of student efforts through praise, an understanding of students' backgrounds, and individualized assistance. Teachers employ various strategies to foster unity, order, satisfaction, and minimize conflict within the classroom.

Students' motivation to learn Science and Mathematics is noted to be high, as they find the learning experience interesting and feel more engaged in a group setting compared to traditional classrooms. Additionally, perceptions of digital learning are positive, with students reporting that it feels more productive, helps solve problems during the learning process, and is more convenient than traditional reference books or notes.

Summary

The data analysis results of Students’ Digital learning are discussed as follows,

For analysis of Present year Student scores, t-test reveals that there is no significant relationship between Male and Female Students, however the Mean of Female student scores are moderately higher than Male student scores. Observed data reflecting that Female students performed better in Mathematics and Science compared to Male student, which also supports that Motivation and perception of Female students is higher than those of Male student.

For analysis of Positive perception towards Digital learning improves Students’ Digital learning, the result is, Teacher-Student Relationship improves Perception Towards Digital Learning. There is a significance by the way of Teacher presenting the information, attention given to student, guiding students in a positive direction and having clear expectation on student performance. Hence improving the results of student and their Perception Towards Digital Learning.

For analysis of Student’s learning motivation shows positive effects on Students’ Digital learning, the

result is, Student's Motivation towards learning improves Students' Digital learning. This is significant by the way of Students are more attentive while learning, found remembering facts easier and able to learn faster. Hence improving the results of Student's Motivation towards learning.

From the analysis of figures, it is observed that, there is a significant difference identified in Student achievement of Previous Academic year and Present Academic year, the present year score is low compared to previous year. The amount of time spent on digital classes is high at "Less than 1 Hour" and "1-2 Hours", that is very less time and attention is given to Digital classes. There are high differences observed in overall students' scores in Hindi, Science and Social than other subjects, very less difference observed in overall students' Maths score. Majority of students do not have computer/laptop facility at home, family support is good, watching programs from Discovery, National Geographic and Animal Planet channels, related to science. Student are very much interested for studying through more electronic classes in future. Teacher-Student Relationship scores observed as, encouragement, acknowledging student effort through recognition and praise, understand student background, assist individual students and uses various strategies to promote unity, order, satisfaction, and less conflict in the classroom. Student's Motivation towards learning Science and Mathematics scores observed as interesting, motivating and feel as a group learning than a regular classroom. Perception Towards Digital Learning scores observed as more productive, problems can be solved in the learning process and student feel like using Digital Learning because it is lighter than a reference book/notes.

Conclusion

The integration of digital methods in teaching and learning significantly enhances student motivation and fosters a sense of community, while also providing individualized attention. These methods facilitate communication and strengthen the relationships that are essential for effective learning. The findings of this study indicate that a majority of students express a keen interest in utilizing the internet and digital tools for educational purposes. Additionally, the results reveal that several factors influence students' digital learning experiences, including prior computer skills, home support, perceptions of digital learning, teacher-student relationships, time spent on digital learning, and student motivation. These factors have a notable impact on academic achievement and performance in digital learning environments. Notably, increased engagement in digital learning correlates with improved learning outcomes, and student satisfaction with digital learning is crucial for academic success.

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