

Article: **AN ANALYSIS OF THE PERCEPTION OF SCIENCE STUDENTS ABOUT THE USE OF TECHNOLOGY IN CLASSROOMS AT THE SECONDARY LEVEL IN ISLAMABAD**

Authors & Affiliations: ¹ Naeem Akhtar
M.Phil Graduate, Assistant Professor, IMCB, F-8/4 Islamabad.
² Tahir Mehmood

M.Phil Graduate, Deputy Registrar, SZABMU, Islamabad.

Email Add: ¹ naeemakhtar3377@gmail.com

² tahirexams@szabmu.edu.pk

Published: 2023-09-30

Article DOI: <https://doi.org/10.5281/zenodo.10977894>

Citation: Naeem Akhtar, and Tahir Mehmood. 2023. "AN ANALYSIS OF THE PERCEPTION OF SCIENCE STUDENTS ABOUT THE USE OF TECHNOLOGY IN CLASSROOMS AT THE SECONDARY LEVEL IN ISLAMABAD". AL MISBAH RESEARCH JOURNAL 3 (03):139-49.
<https://reinci.com/ojs3308/index.php/almisbah/article/view/217>.

Copyright's info: Copyright (c) 2023 AL MISBAH RESEARCH JOURNAL



This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).

Published By: Research Institute of Culture and Ideology, Islamabad.

Indexation's



EuroPub



REINCI

**AN ANALYSIS OF THE PERCEPTION OF SCIENCE STUDENTS.....IN CLASSROOMS
AT THE SECONDARY LEVEL IN ISLAMABAD**

**AN ANALYSIS OF THE PERCEPTION OF SCIENCE STUDENTS ABOUT
THE USE OF TECHNOLOGY IN CLASSROOMS AT THE SECONDARY
LEVEL IN ISLAMABAD**

* Naeem Akhtar

**Tahir Mehmood

ABSTRACT

Since start of 21st century, use of digital technology increased in Pakistan to meet requirements of global changes in education. Study for “An analysis of the perception of science students about the use of technology in classrooms at the secondary level in Islamabad” was conducted and Objectives of the study were (1) to assess perception of students regarding use of technology in a classroom at the secondary level and; (2) to find out the availability of technology in teaching-learning process in Islamabad Model College for Boys. Data was acquired from secondary school students of class 9th, 10th and 11th, through a survey questionnaire. Study was descriptive in nature and stratified random sampling technique was used. Population was 8056 students and 499 students were sample. Findings shows that, using digital technology in the classroom might enhance students' learning. It was concluded that digital learning is advantageous for each classroom. It is recommended that, much more work is required to be done to encourage a technological catch-up.

Keywords: Digital Learning, Digital technology, Technology, Perceptions.

Introduction

We are so dependent on technology in our daily lives. Technology use is now required for a big variety of professions that it was not in the past. Computers are present in most of the homes today than years in the past, and an increasing number of people are adapting its utilization. Every day, both children and adults use technology in a range of ways, such as web browsing, texting, social networking, interactive gaming, and more. Our world is becoming more and more dependent on technology as it develops. As a result, teaching students how

* M.Phil. Graduate, Assistant Professor, IMCB, F-8/4 Islamabad.

** M.Phil. Graduate, Deputy Registrar, SZABMU, Islamabad.

to use technology and doing it efficiently is now a top priority in public schools.

Raising student achievement is a widespread goal in education today, whereas integrating technology as a tool. Policymakers and educators are reaffirming their dedication to initiatives and teaching methods that maximize the impact of learning and student results. The use of technology in teaching and learning is crucial if we have a long-lasting effect on how students learn and give the widespread usage of technology in our society. Now that the Common Core Standards have been implemented and place a strong emphasis on technology, using technology in the classroom will be given even more importance. Teachers are under a lot of pressure nowadays to provide students with a quality education that is in line with 21st century standards. Giving students the informational and technological skills they need to prosper in a technologically driven, dynamic environment is one of these criteria. Teachers are constantly looking for technological solutions to enhance the learning of their students.¹

Education is much more, easy and in modern era, in terms of time and location with the help of information technology. Every student needs to be a part of a support system in order to attain lifelong learning. The school-to-work movement's major objective is to mobilise understanding and support so that children can acquire the skills, routines, and values required for success in all areas of life.² The lives of today's pupils are greatly impacted by technology. Even though incorporating technology into the classroom has been advantageous, there are some downsides.

Technology has boosted student engagement and willingness, which has improved the effectiveness of learning.³ The finest methods of learning involve giving students choices and involving them in relevant events. Effects of computer on motor skills and discovered that utilizing modern technology could alter fundamental psychomotor and cognitive capacities. This includes using gadgets like laptops, electronic organizers, navigational aids etc.⁴

Concerns about student development in the classroom may result from this. Additionally, research thoroughly examines the benefits and drawbacks of technology and shows its potential value. The purpose of this study was to examine secondary school students' and teachers' perceptions of using technology in the classroom, as well as its benefits and drawbacks, with a focus on how it affects students' learning. "Technology" only

AN ANALYSIS OF THE PERCEPTION OF SCIENCE STUDENTS.....IN CLASSROOMS AT THE SECONDARY LEVEL IN ISLAMABAD

refers to educational aids that were computer and internet mediated for the purposes of this study. Understanding how technology affects student learning is crucial because it has the potential to either seriously hamper or considerably empower the learner.

This study's objective was to better educate teachers on effective teaching techniques. To help students succeed is the goal of instruction. Students' parents can learn more about the effects technology has on their kids' academic achievement. The results of this study will broaden our understanding of how to use technology in the classroom. Students today have ready access to a wealth of knowledge thanks to the technology that permeates their surroundings.⁵ Technology in the classroom is frequently viewed as important, advantageous, and necessary for a school to function effectively.

Many teachers are unwilling to make the change and many students lack the motivation to try it. In the modern information era, a wide range of devices can be used to access the abundance of the world's information. Technology that was formerly expensive and exclusively accessible to the rich few, has advanced and become much more accessible. Now teachers need to adapt this new way of life because technology has been a part of students' entire lives.

Technology enables continuous access to information and knowledge. Classes can be completed entirely online using a laptop or mobile device. Learning that is hybrid combines the use of technology from almost anywhere with regular in-person classroom sessions. It is possible to use technology to tailor learning plans for each student in both scenarios. Lessons can be designed based on student interests and strengths.⁶

Objectives

1. To assess the perception of students regarding the use of technology in a classroom at the secondary level.
2. To find out the availability of technology in teaching-learning process in I.M.C. Boys.

Research Hypothesis

1. There was a significant perception of students regarding the use of technology at classroom at the secondary level.

Significance of the Study

1. The study will provide an opportunity for the better use of technology among students.
2. It can be used to gain the greatest productivity regarding the standard of an institution and to create better classroom environment for effective learning.

Literature Review

Although employing technology in the classroom is on the rise, some individuals are concerned that students are using it excessively. Although technology can be a helpful tool, are kids prepared to deal with issues related to technology? Thanks to technology, some educators are using the flipped classroom style. As a result, individuals can learn the material at home and be ready for more discussions, exercises, and activities in class. There has been little study on how to enhance students' conceptual understanding and problem-solving skills in flipped classrooms for mathematical inquiry. It's crucial that pupils have the ability to judge the importance of the information they collect. Technology is used by students to evaluate their own performance. This aids in "transitioning learners on problems from being information consumers to producers".⁷

If the increased use of technology has an impact on fine motor abilities is up for debate. Despite extensive investigation, very little is known about this subject. The study offers a thorough review of the impact of social media on writing. The definition of writing is discussed between teachers and students. Teachers commonly talk about the positive and negative effects social media has had on students' writing. Educators "encourage their students to do at least some handwritten writing because they feel students engage in more active thinking, synthesis, and editing when writing by hand, and writing by hand discourages any temptation to copy and paste other people's work," according to the American Educational Research Association.⁸

Students can collaborate when writing, share their works with more people, and

AN ANALYSIS OF THE PERCEPTION OF SCIENCE STUDENTS.....IN CLASSROOMS AT THE SECONDARY LEVEL IN ISLAMABAD

express themselves more creatively thanks to social media. "There are indeed distinct differences in fundamental fine motor abilities depending on the amount of time spent typing and handwriting texts".⁹ Their research focuses on both handwriting and overall fine motor skills. The usage of computers affects key behavioural criteria as well.

Perspectives on Use of Technology in Education

The culture of technology integration is strongly tied to the differences in how students and teachers use technology across various institutions. More students and teachers preferred to use it in the schools where technology integration was seen favourably. The next generation of educators must understand successful teaching techniques if they are to effectively reach their students. The beginning of teacher preparation is in college. Even though more colleges and institutions are using electronic learning (also known as e-learning), research on how adaptive students are still lacks.¹⁰

Regular users felt successful in fostering a technologically assisted environment, but infrequent users experienced trouble implementing technology for teaching.¹¹ The K–12 institutions where the new professors will work will also feel this void. The subject of a study was motivation among students in elementary and middle schools. They created a technologically advanced learning environment and focused on a few troublesome behaviour. These actions included failing to complete homework, arriving to class unprepared, and sleeping off or resting their heads on their desks. Children are more likely to participate in an activity just because technology is being used, according to the study. Only 80% of the teachers surveyed and reported using technology for no more than 80 minutes every day.¹²

After a technology intervention was put into place, students said that their teachers gave them assignments that were pertinent to them and motivation and engagement among all students rose by 9%. After being presented the students received a questionnaire and their own Web Quests to complete. It was found that the students were more eager to study and enjoyed using the Web Quests. Research has shown that embedded systems do not always affect students' motivation. The key factor stopping the system from being used to its maximum potential is the performance of the CPU.

The ninth- and tenth-graders were studying global politics, economies, and legal systems. A Power Point slide was required for the study of participants as part of their assignment. While typical classroom and hallway behaviours was detected, it was also noted that students' behaviour significantly changed as they entered the computer lab. Students began to take pride in their work and show a greater eagerness to learn. The task was enjoyable and as a result the students all claimed they felt more motivated.

With the use of this technology, students can discuss what they have learned and express their ideas and opinions, exchanging points of view much like in a classroom debate. In modern ages, use of technology in classrooms has been increased, which is beneficial to replace older techniques. Some of the important factors are as under.

Use interactive resources

There are several interactive resources and games online that can assist pupils in learning and maintain interest. Games like Jeopardy, Kahoot, and Quizlet, for instance, can make learning more entertaining and engaging.

Make use of multimedia resources

Including multimedia resources like films, podcasts, and photographs can improve student retention of knowledge and help them stay interested.

Make use of social media

Since many students are active on these sites, integrating them into the classroom helps increase students' engagement and sense of community. You can set up a class on Twitter or Instagram account so that students can post work or talk about class related subjects.

Use educational applications

There are various apps available that can make learning engaging and interesting for pupils. For instance, the language study programme Duolingo makes learning more entertaining by

AN ANALYSIS OF THE PERCEPTION OF SCIENCE STUDENTS.....IN CLASSROOMS AT THE SECONDARY LEVEL IN ISLAMABAD

gamifying it.

Make use of virtual reality

Virtual reality is a fantastic tool for immersing pupils in the learning process. For instance, you could employ virtual reality to let students tour historical sites or go on a virtual field trip.

Research Design

Quantitative approach was used. Study was descriptive in nature and survey methodology was used in the investigation. Data was collected with a questionnaire. 523 College students from the 5 model colleges were chosen at random to take part in this study.

Data Collection

Questionnaire for teachers were administered personally and a ICT learning introduction was given to the respondents so that they could be aware of digital Learning. A standard rating scale used in this research was not a graphic rating such as widely utilized. Not a commonly used visual rating scale was used in this study. Each statement had a level assigned and the responders had to check the one they felt was the most suitable. Agree: A As by 1-1.5, Disagree: D As by 1.6-2.5, and Neutral: N As by 2.5-3 were multiplied to produce a score. With the help of a questionnaire, data was gathered. The researcher got access to the participants' information because they worked at Model Colleges of Islamabad. The Federal Directorate of Education in Islamabad told authorities that the colleges' combined enrollment of 8056 students in the science group at the higher secondary level (IMCB and IMCG) was 26. Qualified participants who expressed interest in participating in research were selected for the filling of questionnaire.

Data Analysis

The findings were computed after tabulating the data in SPSS version 24 was used to process and analyze each questionnaire item. Data was analyzed using frequencies and percentages, as well as a mean score. Findings were formed, conclusion was drawn and suggestions were made based on data analysis. Each item's overall mean score was computed. To determine the overall strength of the responses to each question, the mean score for each

object was decided.

Finding and Discussion

The conclusions and results of the data collected from the respondents serve as the foundation for this chapter. The project's goals included "An analysis of the perception of science students about the use of technology in the classroom and its effects on motivation toward learning" and an "Investigation of perception of science students about the use of technology the in classroom" form 5 colleges using the model provided data. Model colleges for boys and girls in the District of Islamabad were the population of all the institutions in the survey. The collected data must be examined to provide the necessary insights into the study's research topics. Data was interpreted descriptively. The study's participant's demographic profile is displayed below.

Table 4.1: Detail Distribution of Subject

Sr. No.	Subjects	Frequency	Percent
1	Bio Group	139	26.6
2	Computer Group	307	58.7
3	another subject (Phy, Chem)	77	14.7
	Total	523	100.0

Table 4.2: Detail Distribution of Gender

Sr. No.	Gender	Frequency	Percent
1	Male	374	71.5
2	Female	149	28.5
	Total	523	100.0

AN ANALYSIS OF THE PERCEPTION OF SCIENCE STUDENTS.....IN CLASSROOMS AT THE SECONDARY LEVEL IN ISLAMABAD

Table 4.3: Frequencies

	ADT1	ADT2	ADT3	ADT4	ADT5	ADT6
Mean	1.4245	1.245	1.3002	1.5296	1.3996	1.4302
Std. Deviation	.54626	.5582	.51392	.58114	.51692	.59080
Sum	745.00	651.0	680.00	800.00	732.00	748.00

Table 4.4: Frequencies

Sr. No.	School	Frequency	Percent
1	IMSG,F-7/2	93	17.8
2	IMCB,F- 8/4	64	12.2
3	ICB,G-6/3	103	19.7
4	IMSB,G-6/4	211	40.3
5	ICG,I-10/4	52	9.9
	Total	523	100.0

Conclusion

The statement number 16 (My teachers encourage me with positive feedback through email) most of the students are disagreed at this point, so that the statements is rejected. The mean value 1.95 also indicates that majority of respondents disagreed with Positive feedback through email.and twenty-one (21) (My teachers encourage us to take risks in learning new things by internet browsing) most of the students disagreed at this point, so that the

statements is rejected. The mean value 1.98 also indicates that most respondents had disagreed with Teacher uses internet enabled device during teaching.

Recommendations

In-depth research on digital learning activities in core topics in schools is least covered, however it may be too prevalent for difficulties and limitations of modern technology inclusion to be discussed. Further research on the difficulties students have when utilising digital technology in their regular classes at model institutions would be beneficial. In addition, rather than focusing solely on private institutions, it would be fantastic if this study could be conducted in Islamabad's three primary public schools. This will make it more simpler and quicker to deploy digital communication tools in particular schools where there may be more funding. Comparing different institutions is advantageous because it enables the use of success stories as examples. Comparisons between different educational institutions are advantageous so that the strengths may be used as examples and the weaknesses can be addressed to make the required adjustments.

REFERENCES

-
- ¹ Christen, A. "Transforming the classroom for collaborative learning in the 21st century". *Techniques: Connecting Education and Careers*. 84(1), 28-31, (2009). & Costley, C, K. "The Positive Effects of Technology on Teaching and Student Learning". Retrieved form <https://files.eric.ed.gov/fulltext/ED554557.pdf>. Document ID: ED554557. (2014). p-2 .
- ² Carstens, J, K., Mallong, M, J., Bataineh, M. and Al-Bataineh, A. "Effects of Technology on Student Learning". *The Turkish Online Journal of Educational Technology*. (2021), volume 20 (1), p.105 and Hakim, C. "Work-lifestyle choices in the twenty-first century: preference theory". *Routledge*".(2000), Retrieved form https://www.researchgate.net/publication/30530104_Work-Lifestyle_Choices_in_the_21st_Century_Preference_Theory, p.263.
- ³ Fisher, A., Exley, K., & Ciobanu, D. "Using technology to support learning and teaching". *Routledge, Taylor & Francis Group*. (2014) and Carstens, J, K., Mallong, M, J., Bataineh, M. and Al-Bataineh, A. "Effects of Technology on Student Learning". *The Turkish Online Journal of Educational Technology*. (2021), volume 20 (1), p.105.

AN ANALYSIS OF THE PERCEPTION OF SCIENCE STUDENTS.....IN CLASSROOMS AT THE SECONDARY LEVEL IN ISLAMABAD

- ⁴ Sülzenbrück, S., Hegele, M., Rinkenauer, G. and erhard and Heuer, H. "The Death of Handwriting: Secondary Effects of Frequent Computer Use on Basic Motor Skills". *Journal of motor behavior*, 43(3):247-51, (2011). P.249
- ⁵ Egbert, J. "Supporting learning with technology: essentials of classroom practice. Upper Saddle River", NJ: Pearson Merrill Prentice Hall. (2009).
- ⁶ Bay. Atlantic University. "How Does Technology Impact Student Learning?". 3 June, 2022. <https://bau.edu/blog/technology-impact-on-learning/>.
- ⁷ Song, Y., and Kapur, M. "How to flip the classroom-"productive failure or traditional flipped classroom" pedagogical design?". *Educational Technology and Society*, 20(1), pp. 292-305, (2017), p-294.
- ⁸ Purcell, K., Buchanan, J., & Friedrich, L."The impact of digital tools on student writing and how writing is taught in schools". *National Writing Project. Pew Research Center*. (2013),p-6.
- ⁹ Sülzenbrück, S., Hegele, M., Rinkenauer, G. and erhard and Heuer, H. "The Death of Handwriting: Secondary Effects of Frequent Computer Use on Basic Motor Skills". *Journal of motor behavior*, 43(3):247-51, (2011). P.250
- ¹⁰ Park, S,Y. "An Analysis of the Technology Acceptance Model in Understanding University Students' Behavioral Intention to Use e-Learning". *Journal of Educational Technology & Society*, 12(3), 150-162, (2009), p.150.
- ¹¹ Meyer, E. J., Abrami, P. C., Wade A., and Scherzer, R. "Electronic portfolios in the classroom: Factors impacting teachers' integration of new technologies and new pedagogies". *Technology, Pedagogy and Education*, (2011), p.195.
- ¹² Godzicki, L., Godzicki, N., Krofel, M., & Michaels, R. "Increasing motivation and engagement in elementary and middle school students through technology- supported learning environments". (2013). Retrieved from website <https://files.eric.ed.gov/fulltext/ED541343.pdf>, p.50.