

Unveiling the Lived Experiences of Stem Students on the Effects of Gadgets on their Academic Performance

^{1*}Althea Jolie A. Navaja

ORCID Number: 0009-0003-7432-6150

²Yzkra M. Ombaogan

ORCID Number: 0009-0005-1759-6677

John Rhico V. Cubol, MAEd-ST (Research Adviser)

Orcid id: <https://orcid.org/0000-0002-5770-4020>

Heracleo Casco Memorial National High School

SDG-4 QUALITY EDUCATION

Corresponding Author:- ^{1*}Althea Jolie A. Navaja

Abstract:- In today's digital era, gadgets such as smartphones, tablets, and computers have become an integral part of our daily lives, including in educational settings. They have revolutionized the way we access information, communicate, and learn. However, the impact of gadget screen time on academic productivity has been a topic of ongoing debate among educators, parents, and researchers. For this reason, this study was conducted amongst the perceptions of STEM students' exposure to screen time, with the goal to discover the connection between their screen time and the various aspects affected by it and its factors. Semi-structured interview method was used which included Senior High School STEM students as respondents. The results later on revealed that gadget screen time was mainly triggered by boredom and their need for entertainment. It not only affects the academic productivity of the student, but also their sleep schedule and time management. Therefore, we can conclude that excessive gadget screen time can lead to the deterioration of academic productivity as well as negative changes towards their sleep schedules and time management. We recommend that educators and parents should monitor their children's screen time, and they should be aware of its consequences. Students, educators, and parents should all work together to minimize immoderate screen time and its negative impacts.

Keywords:- *Gadget Screen Time, Perception, Academic Productivity.*

I. INTRODUCTION

The increasing use of gadgets among students has raised questions about their impact on academic productivity. While there may be concerns about the potential negative effects of gadgets, it is also important to recognize that an educational resource that is not covered in the teacher's curriculum can be consulted by a student using

a device. The student's perspective and horizons may be widened by the help of gadgets (Ago, 2018).

However, along with their benefits, gadgets also raise concerns about their potential negative effects on students, particularly in the academic context. As students increasingly rely on gadgets for various tasks, including studying, there are concerns about the potential negative impacts on academic productivity. Gadgets can get in the way and serve as a distraction specifically the use of social media, particularly Facebook (Dontre, 2021).

With the heavily expanding reliance on gadgets, this particular aspect has also raised skepticism about their effects on time management. While gadgets offer numerous benefits in terms of productivity and connectivity, they can also be a double-edged sword that can negatively impact our ability to manage time effectively. Prolonged and excessive use of gadgets, along with poor viewing habits and environmental factors, can potentially impact our eyesight. The effects of gadgets on eyesight can include digital eye strain and eye discomfort from glare (Sudip, 2018). The following are the most obvious indications and symptoms of problematic smartphone addictions which negatively affects a person's life; a stipulation to use the phone more frequently in order to get the desired result, persistent failures to cut back on cell phone usage, obsession with using smartphones, using the phone as an escape or a coping mechanism when experiencing unpleasant emotions, loss of sense of time, withdrawal from society, when network disruption happens anger and tension occurs (PsycheGuides, 2022).

For this reason, the researchers conducted a study among the Senior High School STEM students of Heracleo Casco Memorial National High School to see how they perceive the use of gadgets and the internet.

➤ *The Researchers Intend to Answer the Following Questions:*

- How do STEM students perceive gadget screen time exposure towards their academic productivity?
- ✓ What are the negative effects of gadgets on the academic productivity of STEM students?
- ✓ What are the positive effects of gadgets on the academic productivity of STEM students?

➤ *The Results of this Study will Benefit to the following Members of the Community:*

- *Students.*
The students will know the beneficial information about technology that they can take advantage of to enhance their academic pursuits and they will be able to avoid the harmful outcomes of irresponsible gadget use.
- *Teachers and Advisers.*
This will inform teachers about the benefits of technology in enhancing the student’s learning. It will also make it easier for teachers to counsel students on responsible technology use.

- *Parents.*
Given the results of this study, parents will have the knowledge they need about gadget screen time and how it affects their children. They can encourage their children to use gadgets responsibly to achieve good academic results and initiate limits to their screen time to avoid health problems and academic deterioration.

II. METHODOLOGY

This study used the qualitative research design. It utilized the phenomenological interview method to gather statements from the SHS STEM students of Heracleo Casco Memorial National High School about their extent of gadget screen time and its affects to different aspects of their lives particularly, academic productivity.

III. RESULTS & DISCUSSIONS

Table 1 Theme 1: Positive Experiences

Theme	Subtheme
1. Positive Experiences	Lesson Comprehension Good Grades
2. Negative Experiences	Distraction Poor Grades Academic Neglect

➤ *Theme 1: Positive experiences*

This theme tackles the positive experiences of the STEM students pertaining to the effects of gadgets on their academic performance. The subtheme is ; Lesson Comprehension

In this research, it described and explored the new understanding and new insights about gadget screen time and academic productivity, positive and negative experiences and different ways that it shapes a students’ character and how they respond to future encounters of difficulty, as well as their attitude towards the different authentic learning experiences. Interview method was utilized as a way to collect answers from the students.

The researchers utilized Creswell Method which involved 6 followed steps. The first step is to organize the data in preparation to analyze it. The second step is to read the data to lay hold of the general information of its overall meaning. The third step is to start coding the data. The fourth step is to come up with themes, which is essential for crating thorough explanations. The fifth step is to outline how the themes and descriptions will be presented. The last step is to make an interpretation of the results.

➤ *Ethical Considerations*

Ethics were upheld during the conduct of the study. This assured the study's conduct adhered to the ethical considerations. The following were done to address these ethical considerations:

- *Voluntary Participation*
Participants were informed of the study's objectives, their participation was voluntary. They were allowed to ask inquiries concerning the interview or the procedures. Participants are free to withdraw from the survey if they feel uneasy responding to any of the questions.
- *Privacy and Confidentiality*
The anonymity of the participants were kept. The participants' names did not appear else where. No one, in exception to the researchers, had the authority to identify the participants.
- *Informed Consent Process*
The participants of the study were asked for their consent before conducting the interview. Through the provision of deliberate consent to participate voluntarily, this insured respect for the individual.

Table 2 Subtheme: Lesson comprehension

Student A	<i>First positive siya because ang gadgets nakatabang siya sa atoa pinaagi sa magkuha ta ug information. For example sa research ta diba naay mga panahon na dili ta kasabot sa atong academics magkuha tag mga information sa google of magkuha tag mga answer like that. (A.1.5)</i>
Student B	<i>So specifically, gadgets helped me or has agented me in my academics because of these certain gadgets I was able to learn more, I was able to get more specific information about the local problems ...not just problems but the local solutions that we can have. (B.1.1)</i>
Student C	<i>Naka help sya sa akoo pag kanang mag search ko kung kanang di nako masabtan ang kanang lesson. (C.1.3)</i>
Student G	<i>...so....pero mkatabang jud amoang gadgets sa amoa labaw nag kuan sa amoang mga assignments kay di man jjud namo ma kaya na di mag research sa amoang mga subject. (G.1.9)</i>
Student H	<i>Naa man guy sometimes dili nako masabtan among lessons, in order para makasabot ko kailangan ko mag research. (H.1.5)</i>
Student I	<i>Example kanang dili ka kasabot gud sa lessons kay pwede ka mag research sa youtube ba, facebook or google para kuan ma provide jud ang information. (I.1.6)</i>
Student J	<i>For example, I'm doing my research I can easily search for any related topics to my research and also it helps me understand the lessons. (J.1.12)</i>

Students emphasized the benefits of gadgets in terms of academic productivity and performance. Students perceived gadgets to be beneficial in assisting them with their academics through online searching. With the use of technology, STEM students can easily search for and access a variety of digital materials, such as academic journals, reports, online textbooks, and instructional websites. This gives them the opportunity to obtain pertinent and up-to-date information that can complement their classroom

learning and improve their comprehension of difficult STEM subjects.

➤ *Theme 2: Negative Experiences*

This theme explains the negative experiences of the students on the deteriorating effects of gadgets on their academic performance. There are three subthemes; Distraction, Poor Grades, and Academic neglect.

Table 3 Subtheme 1: Distraction

Student A	<i>Para sa akoo kay experience pud nako na sa panahon na mag research ko tas naay mag chat didto na lang ko mag focus maong ma-distract ko. (A.1.2.8)</i>
Student B	<i>For example, we are having an upcoming exam so obviously we need to review. But because of gadgets, for me personally I wasn't able to apply that discipline anymore because that the distractions that the gadgets were giving to me.(B.1.2.6)</i>
Student C	<i>Kanang mag ano ko mag search kos kanang sa amoang projects in ana, sa assignment nya kanang ma distract sa facebook ing ana. Murag ma ano pud ko lain akong- sakit sa akong mata.(C.1.2.6)</i>
Student E	<i>bale mura kog mas ma tintal ko na mugamit- magsalig na lang sa gadget pirme.(E.1.2.6)</i>
Student F	<i>ang disadvantage pud jud sa technology when it come to study or academic kay kanang labi nag ma kuan ka sa social media ...na imbes na mag search ka, mag study ka ang mahunhunaan nimo kay -huy nindot lagi mag scroll scroll sa fb run.(F.1.2.5)</i>
Student G	<i>tungod kay gina allow nila ang cellphone usahay di maminaw ang mga students mag facebook na lang, mga extra ba nga kanang outside na gni sa amoang subject ...naay mga- naay mga magdula sila or mag facebook sila ana...mao na ma distract.(G.1.2.4)</i>
Student H	<i>Ang negative jud sa akoo is kanang dali ra jud kaayo ko ma distract. (H.1.2.9)</i>
Student I	<i>"Example, ma distract kasa gadgets nimo pag in the midst of the lesson kay murag ang lessons dili na masulod sa imong utok ang information."(I.1.2.8)</i>

Table 4 Subtheme 2: Poor Grades

Student D	<i>Sa bad ways kay naay uban na nibaba gyud akong grado kay mao na search-search.(D.1.2.4)</i>
Student I	<i>Ako negative kay ano naga-wattpad ko, nagabasag comics, naga anime. So wala kaayo ko nag module so akong mga grado ato kay barely ko nakapasar ato kay wa man koy pasapas.(I.1.2.8)</i>
Student C	<i>Nag affect sya negatively kay nagbaba akoang grado ato. Nagbaba sya kay late na ko nagapasa kay sige ra kog cellphone di na nako ginahimo akoang module.(C.1.2.6)</i>

Table 5 Subtheme 3: Academic Neglect

Student B	<i>There was a time that because of my screen time I wasn't able to participate in my academics as much tungod kay kapuyon man gud ko.(B.1.2.8)</i>
Student E	<i>mas ma kuan nimo imong time sa paggamit sa gadget kesa sa time nga buhaton nimo imong activity.(E.1.2.6)</i>
Student G	<i>ang negative side niya kay nag bago jud akong kuan murag gi take advantage nako sya ...kanang usahay I na ko maghimog modules kay nagfocus na ko sa akoang cellphone.(G.1.2.6)</i>
Student H	<i>Tapos isa pud ka negative effect sa akoo is... labi na atong sa pandemic instead na mag modules ko dili na nako</i>

	<i>mabuhat kay sige na lang kog cellphone.(H.1.2.9)</i>
Student J	<i>Instead na mag sige ra kog katulog maggamit na lang ko ug cellphone like usahay maabtan kog kadlawon mahuman.(J.1.2.15)</i>

Students acknowledged the negative effects of smartphones to their academic performance. The students admitted that one of the primary issues brought by excessive and unmanaged gadget use is distraction. This suggests that the distraction caused by gadgets during academic activities can have a detrimental effect on students' academic performance. The use of gadgets for non-academic purposes during class or study sessions can disrupt students' focus, which negatively impact their comprehension, concentration, and engagement in academic tasks.

IV. RECOMMENDATIONS

To help lessen the gadget exposure of the students, these recommendations can be implemented. Schools can incorporate designated zones where students are encouraged to engage in non-screen activities such as reading books, group discussions, or physical exercises. It is crucial for educators and parents to discipline students about the importance of balanced and healthy screen habits. Moreover, setting screen time limits can assist in regulating and monitoring students' gadget usage.

V. ACKNOWLEDGMENTS

➤ *The Researchers would like to Express their Gratitude to the following Persons who Made the Completion of this Paper Possible:*

To **Dr. Nerwyn Z. Samoro**, Research (AGILA) Coordinator of Heracleo Casco Memorial National High School, for the technical assistance he gave to the researchers. His guidance was one of the reasons that the researchers strived hard to accomplish this paper.

To **Mr. Jason M. Delos Reyes**, Principal II (AGILA) of Heracleo Casco Memorial National High School, for his untiring support and encouragement given to the researchers. This served as the pushing power of the researcher to continue this research despite the inconveniences and problems encountered in every step of the way.

To **Dr. Lemuel Sayao, Jhester S. Hornejas, Mark Ryan Milla and Gap Elgyzon Omosay**, the adjudicators during the proposal and research presentation, for the comments, suggestions, and recommendations they presented to the researchers. Their advices shed light on the loose ends of this paper, which served as a basis for the improvement of this paper.

To **Mr. Neil Marc J. Mate, and Vicent E. Juezan**, , for assistance in digital arts, drones shots, and other data from the planning office in support of the completion of the research paper and also for their unending inspiration to the researchers to finish this paper. Their constant reminders and follow-ups made this paper to be finished on time.

To **Mr. Christian Myles T. Pascua**, Project STARCH (Stem Alumni Research Collaboration and Techniques) owner for the assistance in data gathering and technical assistance.

To **Ms. Guia Marie Meneses-Cubol**, for the technical assistance in writing and clerical expertise and assistance to the interpretation. Her evaluation on ethical considerations and protocol for qualitative sensitivity and data privacy act of 2012.

To **Mr. John Rhico V. Cubol, our research adviser and instructor** for the conceptualization, organization, flow, and step-by-step process in guiding the researchers for the completion of the quantitative and qualitative protocols. Hence, the following guidance of the tasks: A. theoretical and conceptual foundations and problematization; B. data research and statistical analysis (Qualitative Analysis) with Atlas Ti software; C. elaboration of figures and tables; D. drafting, reviewing, and writing of the text; E. selection of bibliographical references; and Selection for the publication of this research paper. This serves as the force to finish up the publication in bringing the school to the international arena.

Last but most importantly, to **The Almighty God**, for without Him we can do nothing (John 15:5).

REFERENCES

- [1]. Ago, A. #steemiteducation • 5 Y. (2018, February 13). *Evaluating The Positive And Negative Effects That Gadgets Have On Students*. Steemit. <https://steemit.com/steemiteducation/@agrojaya/evaluating-the-positive-and-negative-effects-that-gadgets-have-on-students>
- [2]. Dontre, A. (2021). The influence of technology on academic distraction: A review. *Human Behavior and Emerging Technologies*, 3, 379–390. <https://doi.org/10.1002/hbe2.229>
- [3]. *Mental Health Resources—Disorders & Treatments | PsychGuides.com*. (n.d.). Retrieved 29 December 2022, from <https://www.psychguides.com/>
- [4]. (PDF) *Research Report About Effect of Display Gadgets on Eyesight Quality (Computer Vision Syndrome) of M.Sc.(CSIT) Students In Tribhuvan University*. (n.d.). Retrieved 15 April 2023, from https://www.researchgate.net/publication/331974689_Research_Report_About_Effect_of_Display_Gadgets_on_Eyesight_Quality_Computer_Vision_Syndrome_of_MS_C_SIT_Students_In_Tribhuvan_University