

Factors that Affect the Computer Literacy of the Grade 8 Students in Pilar College of Zamboanga City

Ma. Rossaine R. Fernando , Crystal Jade A. Cunanan

*Normal Road, Baliwasan Zamboanga City, College of Teacher Education
GRADUATE SCHOOL , WESTERN MINDANAO STATE UNIVERSITY*

I. INTRODUCTION

Technology plays an important part in today's life. In this generation, technology has been used by people especially young ones on their daily basis like, texting, website surfing, social networking, and even for online interactive games. The computer subject has been taught in school since before pandemic. This has become an important skill across all levels of Education, from grade school, junior high school, senior high school, to even in tertiary level. In fact, in the year 2022, the Department of Education (DepEd) committed to addressing the difficulties in E-learning and the integration of technologies. Hence, in K-12 curriculum, the basic knowledge in computer has been updated to include productivity tools like Word processing, presentations, and worksheets for Grades 4-6 in public schools, and for Grades 1-6 for most private schools. Grade 7 learners, have their basic programming skills, while the Grades 8-10 have their multimedia concepts that focuses on video editing and graphic designs. In senior high school, especially those schools who are offering TECH-VOC tracks, are likely to have computer servicing, computer programming, technical drafting, and broadband installation. For non-TECH-VOC Tracks, still, they are exposed to computer literacy, like the Empowerment Technologies subject. According to Costley (2014) he emphasized that at the young age like in grade schoolers it was good to have early exposures in technology to foster self-confidence and be competence in computer literacy skills which will supports their lifelong learning. Dabu et. al. (2023) confirmed that computer literacy activities are intended for them to develop stronger skills in handling or performing complex digital activities. Additionally, Zakir et. al. (2025) found an actual data-driven that proves that students who develop computer literacy tend to perform better academically in online classes. Thus, improving computer literacy empower students to perform well in school. Although it was mentioned in the studies, computer literacy is vital for lifelong learning and strongly linked to better academic outcomes through enhanced ability to access, evaluate, and use information effectively, it was not mentioned the negative consequences of computer and technology. According to Vasquez-Cano et. al. (2022) and Strom (2021) warn against too much use of digital devices and social media by learners. They emphasized that too much screen time can cause distractions, anxiety, and health problems that may lead to poor academic performance. Therefore, there is a need for balanced and guided computer literacy education. Hence, the researchers were highly encouraged to conduct a study to determine the factors that affect the computer literacy of grade 8 students in Pilar College of Zamboanga City.

Statement of the Problem

This study aims to answer the following questions:

1. What are the challenges faced by Grade 8 students in Pilar College of Zamboanga City in developing their Computers Literacy Skills?
2. What are the most common factors affecting the computer literacy of the students?

Significance of the Study

This study focuses of determining the Factors that Affect the Computer Literacy of the Grade 8 Students in Pilar College of Zamboanga City. The results of this study will provide valuable insights and benefits for the following stakeholders:

Pilar College of Zamboanga City

The study will serve as a diagnostic tool to identify gaps in the current ICT infrastructure such as the need for more stable internet to support student activities. It also provides data-driven evidence to justify future investments in computer laboratory upgrades and digital resources.

Administrators

It assists in policy-making regarding the integration of technology in the Grade 8 curriculum especially the laboratory schedule, to ensure no student is left behind due to a lack of time and foundational knowledge.

Students

It validates their personal struggles with kinesthetic and operational learning, helping them realize that difficulties with hardware mechanics are a normal part of the learning process.

Teachers

New techniques in computer subject are highly effective in helping students progress and it identifies the specific need for more guidance and educating for students who enter the class room with zero base computer knowledge.

Future Researchers

This study provides a foundational qualitative framework that can be tested on other grade levels or different school settings. It opens doors for further research into how social influences the academic performance of students in ICT subjects.

Scope and Delimitations

The primary focus of this study is to identify challenges faced by students in developing computer literacy and the common factors affecting their skills among Grade 8 students at Pilar College of Zamboanga City during the academic year 2025-2026.

The study involves twenty-eight (28) Grade 8 students currently enrolled in the computer subject. The data will be collected primarily through Focus Group Discussion (FGD) for better understanding of what they see and feel about the challenges and factors that affects their computer learning.

This study utilizes a qualitative descriptive design to explore real-life experiences and to identify the challenges and factors affecting their computer skills. The study is purely qualitative, a purposive sampling method was used to select students who could articulate their experience, so, it does not aim to provide numerical data between variables. This approach allows for the identification of themes such as digital adaptation and support system in the developing computer literacy skills.

This study is delimited to Grade 8 students of Pilar College of Zamboanga City only. It does not include students from other grade levels or other schools. The researchers focus on the challenges and factors that affects student's computer literacy and does not explore to other factors such as socio-economic background, prior trainings, gender-based differences, or psychological learning profiles, as these were outside the research scope.

II. REVIEW OF RELATED LITERATURE AND STUDIES

Computer literacy is a vital skill in 21st century skills, and it plays a fundamental role in molding the future individuals, particularly the students. On the other hand, varied factors can impact an individual's capability to improve their computer literacy skills; by focusing on these aspects, we can promote a digital fluency for all. In fact, according to R. Scherer et. al. (2019) students from higher socioeconomic status backgrounds are generally have bigger access to technology, better opportunities and exposures, more parental support, which leads to higher chance of being expert in computer, on the other hand, students from lower socioeconomic status backgrounds have less opportunity to develop ICT skills which impacts their academic achievements and future opportunities. He also emphasized that whether students are in different social economic backgrounds it is not only the access to computers that matters but also the quality and how frequently it uses to develop the ICT skills. Zhang (2021) agreed school characteristics such as whether the school is urban or rural, affects computer literacy, for instance, the rural school type is likely to have limited access to information activities which affects reading and computer literacy, on the other hand, the urban school type has more access to resources and infrastructure supporting the availability of the use of computers to aid the needs of urban students. Student's attitudes and motivation play an important role in their learning behaviors. Computer attitudes means that what students think about who uses the computer most, who uses computers for learning, and uses computers for enjoyment. They believed that student success shows how students behave in school, even though technology is constant, Lee et. al. (2019) supports their idea that positive attitudes and confidence about computers lead to positive results.

Computer Literacy Skills

Computer Literacy skills refer to the ability of learners or students to perform digital devices, navigate online, and the use of software applications such as Word processing, Microsoft Excel, PowerPoint Presentation,

and responsibly used of multimedia in digital world. According to Dabu et. al., 2023, students who were exposed to computers at early stage tend to develop their computer literacy skills more.

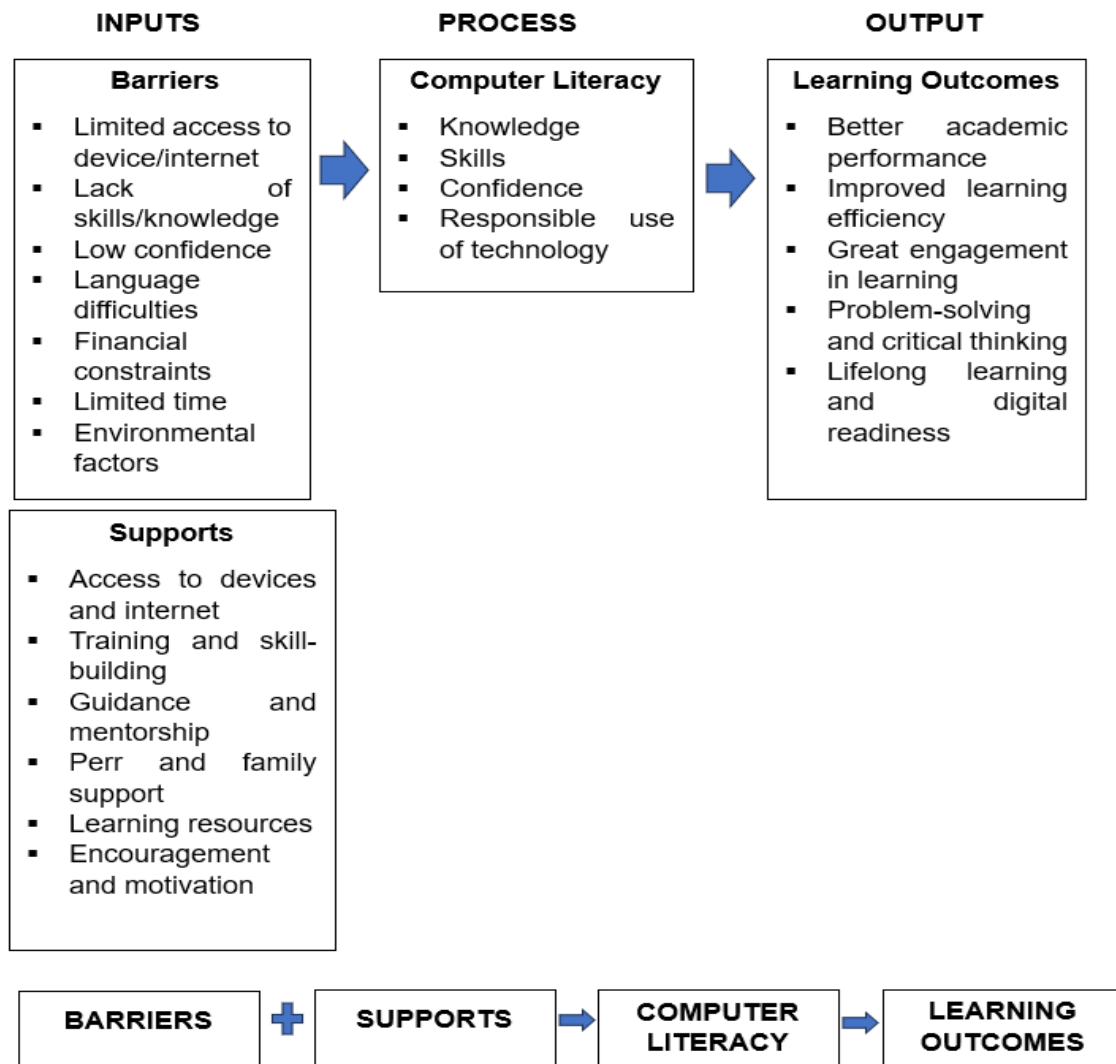
Grade 8 Curriculum on Information and Communication Technology (ICT)

In the K-12 curriculum, the grade eight (8) learners or students are expected to develop competencies in multimedia, which includes are digital design, image editing in GNU Image Manipulation Program (GIMP), audio editing in Audacity, video editing in OpenShot, CapCut and PowToon, and the used of Internet safely. The said competencies aim to prepare learners for real-world scenarios, to improve their technological skills, particularly in private schools like Pilar College where they are exposed to computers, its software applications where multimedia tools are integrated into subject areas.

III. THEORETICAL FRAMEWORK

In Constructivist Theory, whose foundational researchers are Jean Piaget and Lev Vygotsky, emphasizing active, learner-centered knowledge construction through real experience and social interaction, basically, it is a student-centered approach. This theory supports how students interact with computers, guided learning, and hands-on opportunities influence the challenges they face in developing computer literacy skills. Ayse Derya Isik (2018), constructivism approach, arose with the idea of making education more efficient and lasting, learning occurs when there is an active effort of the individual and constructed in minds. While, the Digital Divide Theory explains that socioeconomic factors affecting computer literacy such as access to devices and internet connectivity, wherein, Rakhi Kumari (2021), emphasizes that there are challenges of ICTs integration in constructivist teaching-learning, one is the ICT devices are more expensive, big lack of well qualified professional of ICT, shortage of well-developed infrastructure, the content and language and the poor implementation of ICT.

Table 3.1: Conceptual Framework of the Study



The conceptual framework shows how different factors influence students' learning outcomes. In this framework, the "Barriers" to learning are those challenges that makes learning more difficult. These can limit a learner's ability to fully engage, understand, or complete tasks effectively and on time. When such challenges are present, they may slow down the progress or create gaps in knowledge and skill development, on the other hand, The "Supports" to learning refers to the conditions or influences that facilitate learning. These include guidance, resources, or opportunities for engagement that help learners better understand the concepts and apply it to a real-world scenario. Support systems can enhance motivation, improve skills, and make the learning more effective.

This framework is grounded in two theoretical perspectives. The Digital Inequality highlights how differences in access to resources and opportunities can create inequalities in learning experiences, meanwhile, Constructivism, emphasizes that learning is an active process where individuals build knowledge through experience, interaction, and practice.

Hence, the framework implies that learning is not only affected by individual effort but also by external factors. Reducing barriers and strengthening support systems can lead to more effective and meaningful learning outcomes.

Operational Definition of Terms

Barrier – This is any challenge or obstacle that prevents or limits a person from achieving it such as lack of resources, skills, or access to technology.

Computer Literacy – This is the ability to use computers effectively for learning.

Factor – This is any condition that affects a situation or outcome.

Focus Group Discussion (FGD) – A qualitative research method where small group of participants discusses a topic by a researcher to gather opinions, experiences, and insights.

Information and Communication Technology (ICT) – These are technologies and digital tools used to create, store, process and share information, like, computers, internet, software, and mobile devices.

Learning Outcomes – These are knowledge, skills, attitudes, or abilities that learners are expected to gain after completing an activity.

Multimedia – This is the combination of different forms of media, like, text, images, audio, video, and animation used to present information interactively.

Support System – These help individuals overcome challenges and be the reasons to achieve their goals, like, people, resources, services, or assistance.

IV. METHODOLOGY

4.1 Research Design

This study will use a qualitative descriptive design. This design allows the researchers to explore real-life experiences of Grade 8 learners regarding their computer literacy challenges and influencing factors. It is ideal for gathering natural responses, describing context, and identifying themes from discussion and interviews.

4.2 Sampling

The respondents of the study are the selected Grade 8 students from Pilar College of Zamboanga City during the school year 2025-2026. There were twenty-eight (28) respondents. They were selected through purposive sampling. Purposive sampling was chosen by the researchers to limit the number of respondents. Since the participants are minors, they are automatically categorized as vulnerable population. To address this, the researchers followed certain mechanisms: parental consent and assent form were secured, participation in the study is voluntary only, and students can withdraw anytime without penalty, the teacher or the researcher will not be present during the data collection to avoid the pressure in answering, the researchers made sure that questions were appropriate at their age, non-sensitive, and it was aligned with the Information and Communication Technology (ICT) content or curriculum, they were informed that their grades in computer subject won't be affected whether they participated or refused, they are also allowed to skip any question that they feel uncomfortable in answering, the researchers ensured a comfortable place or environment during the discussions.

4.3 Sampling Procedure

A purposive sampling method was used. The Focus Group Discussion (FGD) was conducted to gather students who can articulate experiences regarding their skills in computer. This ensures quality of responses rather than quantity.

4.4 Research Instrument and Validity

The study used a semi-structured Focus Group Discussion (FGD) guide. The instrument was developed based on the objectives of the study and on existing literature regarding the computer literacy skills among Grade 8 students. There were steps conducted to ensure the validity of the instrument; the questionnaire and FGD guide were reviewed by an expert in the field of ICT education, his/her suggestions and corrections were incorporated into the final version of instrument, the items were checked for clarity and simplicity to ensure that grade 8 students could understand them easily, a pilot test was conducted with five (5) students from different sections who were not part of the actual study. Feedback from the pilot test helped identify unclear or ambiguous questions, which were then revised.

4.5 Data Collection Procedure

A questionnaire was derived by the researchers from the instrument used. The researchers asked permission from the School Principal to conduct interview and collect data from the Grade 8 respondents. The researchers distributed and collected the participants parental consent form and assent form since they are all minor. The researchers also informed them of the purpose of the study, the procedures and confidentiality of the study, FGD sessions were conducted in a room without the teacher present, their response was voluntary only, responses were conducted, transcribed, and coded. This data collection was carried out specifically at Pilar College of Zamboanga City, school year 2025-2026.

4.6 Data Privacy and Confidentiality

The researchers strictly adhere to the Data Privacy Act of 2012, that no names or identifying information were collected, codes were used instead of student names, audio recording and transcripts were stored in a password-protected device or hidden in a gallery, only the researchers and advisers of the grade 8

students had access, after the completion of the study, the data will be deleted to ensure it will not be leaked or seen by others.

4.7 Risk Management and Mitigation

The researchers acknowledged that students may experience mild discomfort during the discussions or hesitation to share their personal experiences, the researchers informed the participants that they were free to skip any question that they did not wish to answer. The instrument did not include any sensitive or personal questions, ensuring that discussions remained appropriate and non-threatening. The data gathering environment was kept relaxed, safe, and respectful to help participants feel comfortable throughout the process.

4.8 Data Analysis

The data gathered from the Grade 8 students of Pilar College of Zamboanga City was analyzed using thematic analysis, for Statement of the Problem number one (1), which focuses on identifying the challenges faced by Grade 8 students in developing their computer literacy skills, the researchers coded and categorized the responses to extract recurring themes. For Statement of the Problem number two (2), which aims to determine the factors affecting students' computer literacy, the researchers examined the patterns and similarities across the participants' responses to identify common influencing factors.

4.9 Ethical Considerations

This study complies with the policies and measures were observed; parental consent and assent form were obtained, participation were voluntary, with the right to withdraw at any time, no incentives or compensation were provided, confidentiality and anonymity were strictly maintained, data were stored securely and will be deleted after the completion of the study, no conflict of interest exists between researchers and participants, lastly, the study poses minimal risk and has undergone ethical review.

V. RESULTS AND DISCUSSION

This chapter presents the findings of the study based on the thematic analysis of data gathered from Grade 8 students at Pilar College of Zamboanga City. The results are categorized into two major themes corresponding to the study's objectives: (1) The challenges faced by Grade 8 students in Pilar College of Zamboanga City in developing their Computers Literacy Skills; (2) the most common factors affecting the computer literacy of the students.

Table 5.1. Thematic Analysis of Grade 8 Students in developing their computers literacy skills and factors affecting the computer literacy

Main theme	Sub-theme	Definition	Evidence
Theme 1: Navigating the Complexities of Digital Adaptation	Structural and Environmental Constraints	The external environmental factors specifically the connectivity and time that dictates psychological pressure.	"I think it's when there is no internet or limited internet, there are some instances wherein we need to have internet to be able to use certain programs and to pass activities." <i>Participant 1</i>
	Kinesthetics and Operational Learning	The physical and mechanical skills required to manipulate hardware and software.	"..... for me none, but if I were to observe other students who experience using computers for the first time would probably be because of the controls and mechanics..." <i>Participant 4</i>
	Foundational Knowledge and Support	The educational gap being "without knowledge" and achieving understanding	"A help or a tutor po, to be honest ma'am I'm not really good at computer I really don't know and

		through external help.	memorize <i>mga</i> apps.” <i>Participant 16</i>
Theme 2: The Interplay of Technical, Instructional, and Social Support in Digital Skills	Technical Infrastructure and Limitations	It focuses of the physical tools required and the environmental frustrations to the students that hinder the process.	“Without a computer you simply cannot visualize how a certain skill works po, <i>kaya need talaga ang computer.</i> ” <i>Participant 4</i> “Slow internet makes my education harder by loading, makes me furious and a lot of time consuming, and slow research, and slow tabs.” <i>Participant 7</i>
	Pedagogical Excellence and Innovation	The importance of skilled and expertise of teachers to make the learning easy yet interesting.	“Because they are the one who guides us when we need help and they also give us more knowledge about computer which helps us improve our skills.” <i>Participant 12</i>
	Collaborative and Informal Learning Networks	It shows that learning does not just happen in school, it also can be from family and friends.	“Fellow family, friends, and companions can help improving their skills. They can build or strengthen their skills when using a computer.” <i>Participant 14</i>
	The Iterative Process of Mastery	It represents that “learning by doing” is a way to success.	“Practice is important because it is the process of learning and exploring computers and its basics. This will help you in things you need to be aware, alert, and informed.” <i>Participant 21</i>

In table 5.1, theme 1, Challenges Faced by Students (SOP 1), the data shows that Grade 8 students face challenges in terms of, environmental like slow internet and deadlines, physical in keyboarding and mechanics, and cognitive in lacking of knowledge. The sub-theme 1.1, Structural and Environmental Constraints highlights that unstable internet, students feel a “psychological pressure” to complete their computer tasks. Furthermore, the sub-theme 1.2, Kinesthetics, proves that computer literacy is a physical activity, students must overcome the “mechanics of the hardware before they can master the software. As for the sub-theme 1.3, the Foundational Knowledge and Support, there is a clear conceptual void among students who describe themselves as “without knowledge”, the reliance on tutors and guidance suggest that self-directed learning is difficult at this stage, and so, students require a human support from digital confusion to proficiency.

In theme 2, Factors Affecting Computer Literacy (SOP 2), highlights that skills acquisition is like an ecosystem, involving tools, teachers, and community. In sub-theme 2.1, the Technical Infrastructure and Limitations, confirms that hardware is the foundation of visualization. As Participant 4 said, without a physical computer, the concepts remain abstract and impossible to visualize. Furthermore, technical frustrations like “slow internet” are not just inconveniences to them but are described as “furious” and “time-consuming”, which can lead to student burnout or disengagement or discontinued activities. In sub-theme 2.2, Pedagogical Excellence and Innovation, the teacher’s role is primarily to integrate new techniques, to share new knowledge,

to make it easy to understand yet fun and engaging, through these, it reduces the complexity of the digital works and feel less daunting. Moreover, the sub-theme 2.3, Collaborative and Informal Learning Networks, students do not learn in a vacuum, instead they also rely on family, friends, and companions to strengthened their skills, the help available at home is a major factor for student's development in computer skills. Lastly, the sub-theme 2.4, The Iterative Process of Mastery, it emphasized that practice is framed as an exploratory process, it is through repetition that students move from being alert and informed to being literate, that is why hands-on experience is irreplaceable in computer education.

The relationship of these two themes shows a transition from barrier to enabler. While Theme 1 focuses on the friction, theme 2 focuses on the fuel that helps students overcome those challenges.

For the Grade 8 students at Pilar College of Zamboanga City, computer literacy is a balance of having the right tools, the right support, and enough time to practice.

VI. CONCLUSION

The study utilized a qualitative descriptive design to explore the Factors that Affect the Computer Literacy of the Grade 8 Students in Pilar College of Zamboanga City. The findings showed that students face significant structural challenges, such as limited internet and time pressures, as well as the kinesthetics and operational like memorizing the keyboards, controls and mechanics, encoding, editing and even the computer shortcuts. On the other hand, computer literacy is strengthened through guidance from knowledgeable teachers, social support, and consistent practice.

Therefore, we conclude computer literacy development is heavily dependent on reliable internet and hardware availability, instructional quality and social support systems are critical in bridging the gap for students who lack foundational knowledge and practical hands-on should be repetitive to remain the most effective ways for students to overcome the kinesthetic barriers of digital tools.

VII. RECOMMENDATIONS

In light of the findings of the study, the following recommendation are proposed:

For School Administration

Provide more "open lab" hours for students to practice at least one (1) hour daily at 4:00 to 5:00 pm for those students who are willing to stay and learn computer skills.

For Teachers

Continue to use new techniques in every new lesson and provide more guided sessions for students who identify as "without knowledge".

For Parents

Encourage a supportive home environment where students can seek more help or practice digital tasks without fear of making mistakes.

For Students

Prioritize consistent practice when inside the laboratory and utilize peer-to-peer learning by asking those classmates who are more knowledgeable.

For Future Researchers

Conduct a follow-up study focusing on the specific techniques that teachers may use to see which are most effective for Grade 8 learners.

REFERENCES

- [1] R. Scherer et al. (2019) educational technology and perceived usefulness, ease of use, and teachers' attitudes strongly influence their intention to integrate technology into teaching.
- [2] Zhang (2021) emphasizing that effective integration of technology improves interaction and academic performance in online or blended learning environments.
- [3] Lee et al. (2019) found that technology can enhance collaboration, motivation, and access to educational resources.
- [4] Dabu et al. (2023) challenges in technology integration in education, highlighting issues such as limited digital resources, lack of teacher training, and unequal access to devices among students.
- [5] Ayse Derya Isik (2018) concluded that technology can support student-centered learning and improve learners' motivation and participation.
- [6] Rakhi Kumari (2021) emphasized that access to digital tools and digital literacy are essential for improving students' learning outcomes.

