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Vouching the Digital Literacy in Instruction Viz-A-Viz Performance: Contextualized Enhancement Activities

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***Abstract*—The study determined the degree of digital literacy and the various ICT skills of Senior High School Students of Biasong National High School, Balamban, Cebu, for the academic year 2021-2022. Significantly, it aimed to identify the students' levels of digital access, specifically in terms of motivational access, material access, skills access, and usage access. The data was processed with the respondents' profiles to create contextualized enhancement activities that used the available materials and digital devices. Simple percentage, weighted mean, Pearson product-moment coefficient of correlation r, simple ranking, independent samples t-test, and one-way analysis of variance (ANOVA) were used with the descriptive-correlation methodology. Findings indicated that there is virtually no correlation between respondents' levels of digital access and their age, sex, and academic standing. Moreover, skills access and use access have low positive correlations with motivation access and overall digital access (r=0.398, p>0.01) and with each other (r=0.398, p>0.01). This implies that, although the correlation value is slightly higher than that of the other intercorrelations of factors, it still shows low correlation. However, there is a weakly positive correlation between Usage and Overall Digital Access Levels (r=0.516, p>0.01) as well as between Skills and Overall Digital Accesses (r=0.643, p>0.01). The Moderate association indicates that, despite the critical importance of digital device usage and ICT skills for developing digital literacy, respondents do not exhibit lower motivation or use digital devices less frequently.**

***Keywords*— Digital literacy; digital access levels; ICT instruction; performance; contextualized enhancement activity.**

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I. INTRODUCTION

Delivering quality 21st-century basic education anchors on developing a specific set of skills, especially in ICT, to achieve economic relevance [1], [2], [3], to contribute to social change [4], [5], to create world-class educational institutions and globally-competitive workforce, and to nurture the 21st-century skills [6] on the broader perspective. Several researchers also acknowledge its benefits to young learners, such as improvement of their academic performance [1], [7], [8], narrowing the range of digital gap among the youth [9], [10] , upskilling to be globally competitive [3], development of critical thinking [11], self-identity, social, and cultural awareness [12], [5]. With these lists of promising benefits of utilizing ICT resources in this knowledge-based global economy [1], there is enough reason to focalize digital literacy as a core medium to address the achievement gap of the students of Biasong National High School.

The Philippines notched all below average in Mathematics, Science, and Reading compared to the participating member countries of the Program for International Student Assessment (PISA) of the Organization for Economic Cooperation and Development (OECD) [13]. That implied the face of the quality of basic education in the country. Furthermore, that concern was acknowledged by the Department of Education (DepEd), and the agency vouched for improving the quality of basic education in the country through “Sulong Edukalidad” [14], [15]. That assessment accorded with the Performance Indicators of Biasong

National High School for School Year 2020-2021, particularly with the reported achievement rate of 17.33% (Biasong National High School, 2021). The 57.67%-gap from the passing rate of 75.00% called for a radical improvement in delivering good quality basic education to its approximately 300 students for the current and subsequent school years. Those two assessments, among the few qualitative and quantitative observations, prompted the conception of this study.

Acquiring concrete information about the digital literacy of GAS students at Biasong National High School is a feasible factor in enhancing structured programs that align with the Department of Education's standards, thereby improving the quality of basic education in the Philippines. With that, the study hopes that the Senior High School students of Biasong National High School will commence with more enhanced capabilities to meet the desired standards in the expanding global knowledge economy [9]. This study is anchored in the following digital literacy, supplemented by Digital Access Theory.

A. Digital Literacy

There is barely a centralized definition of digital literacy. This prompted Law, Woo, de la Torre, and Wong in2018 to propose to the United Nations Educational, Scientific and Cultural Organization (UNESCO) the definition of digital literacy. According to them, digital literacy is "the ability to access, manage, understand, integrate, communicate, evaluate, and create information safely and appropriately through digital technologies for employment, decent jobs, and entrepreneurship. It includes competencies that are variously referred to as computer literacy, ICT literacy, information literacy, and media literacy." Digital literacy also consists of five (5) varieties of literacies such as (1) photo-visual literacy, (2) reproduction literacy, (3) branching literacy, (4) information literacy, and (5) socio-emotional literacy [16]. Photo-visual literacy is interpreting information with digital visual objects.

Reproduction literacy is using digital technology to synthesize outputs from pre-existing items. Branching literacy is navigating through the complex nature of digital space. Information technology is discovering, rediscovering, analyzing, and evaluating information on the internet. Socio-emotional literacy is determining the purpose of participating in a digital platform and displaying behavior in the context of socialization with other people on the internet. [17] has also claimed that digital literacy embraces technical, cognitive, and socio-emotional perspectives of online and offline learning with digital technologies.

The technical dimension is about acquiring necessary technical skills to navigate through the different hardware and software in a piece of digital technological equipment. The cognitive dimension involves applying thinking skills to search, evaluate, and select information, digital tools, and technologies, while considering related ethical, moral, and legal standards. The social-emotional dimension involves the operation of digital tools responsibly in connecting with people with utmost consideration of intellectual, moral, and cultural references [8].

B. Digital Divide

Theory of the Digital Divide by [18] revealed that this theory addresses the growing divide by emphasizing that the problem of digital inequality does not end once physical access is obtained but instead begins when digital media is integrated into daily life. This theory was created to account for the digital divide, which refers to the difference between people who have and do not have access to information and communication technology. A study by [19] emphasized the importance of evaluating information critically, ensuring the accuracy of the application used, and thoroughly understanding the content in digital content. [20] stated that connecting learning approaches with information technology and digital literacy is required for developing values and integrating prior knowledge.

In the first instance, this study examines digital access for students at four levels [18]. The levels encompass motivations to adopt information and communication technology, access to digital tools, the ability to use these tools, and actual usage of such tools and services. The four levels are central to [18] theory of the digital divide, which presented a model of successive types of access to digital tools, implying that there are four consecutive types of access to digital tools, namely motivational, material, skills, and usage access.

Jiawook [21] noted that the original digital divide of physical internet access had given way to a divide in internet skills. Vizconde [22] suggested that before skills and usage access become operational, the students' access and self-reports regarding their use of technology, motivational, and material access must be resolved. Material access must be prioritized first because other types of access cannot be initiated without it. She explained that students had a high interest in technology, but due to limited material access, their skills and usage decreased, resulting in only moderate access. Most students are unaware of the use of ICT infrastructure, resulting in a low level of learning [23]. Fundamental elements of technical support, specifically whether students have the necessary technical equipment, an adequate Internet connection, and the availability of software required for educational purposes [24].

Williams [25] has defined digital divide as a "social gap between those who have access to and use computers and the internet." It exists when there is an uneven spread of digital technology use when comparing one entity to another. This would become a serious concern to consider because it simply exists. The implementation of the K to 12 Basic Education Curriculum's standards can be affected by a deficiency in skills, materials, and support systems. A digital divide exists when a person performs below the average level in digital literacy skills, such as basic computer usage, file management, system maintenance, word processing, internet searching, spreadsheet, and PowerPoint. It also manifests in access to technologies, characterized by their level of efficiency and effectiveness for the individual [10].

The digital divide is essential to education. The Philippine Institute for Development Studies in 2015 showed that "education correlates with living standards: practically nineteen out of twenty poor persons in 2009 belong to households where the heads have little or no schooling. Lack of education of the household head limits earning potentials of the household."[26], [27]. These poor students enroll in

public schools are experiencing a digital divide since there is an "inequality in access to digital media, hence, aggravates the existing digital divide in educational opportunities in contemporary society" [27]. To address the concern of the digital divide, there are four levels in measuring digital access: (1) motivational access, (2) material access, (3) skills access, and (4) usage access. Motivational access can be a subjective matter since it deals with the individuality of a user. Perceptions of usefulness and ergonomics, and other subjective norms become determining factors to the level of motivation a person to commit to accepting digitalization. Material access anchors to the following demographic categories: income, education, age, gender, and ethnicity. Skills access refers to the relative skills required to have a command and use digital media. Medium-related skills (digital command media) predominate over content-related skills such as finding information, communicating, acting, and creating. Usage access is the primary goal, which is measured with usage time and frequency, number and diversity of usage applications, broadband or narrowband use, and more or less active or creative use [18].

C. Enhancement Program roadmap

By acknowledging the importance of digital literacy in 21st-century basic education, it is imperative to integrate ICT skills into the enhancement programs that an academic institution utilizes. Effective use of ICT integration needs a system roadmap, which is a multi-staged, multi-user approach to guide educational institutions to acquire and develop the appropriate information structure (information structure) and competencies (knowledge and skills) for an optimal, efficient, and effective use of technology by school administrators and staff, teachers, and students [28]. The study proposed a roadmap for Basic Education (BED) institutions wherein the technology integration roadmap comprises three different stages and three distinct user groups. The three stages include (1) acquisition stage – technology and competence build-up, (2) utilization stage – technology for productivity, and (3) full integration stage – technology in the right places. The three user groups include (1) administrators, (2) teachers, and (3) students.

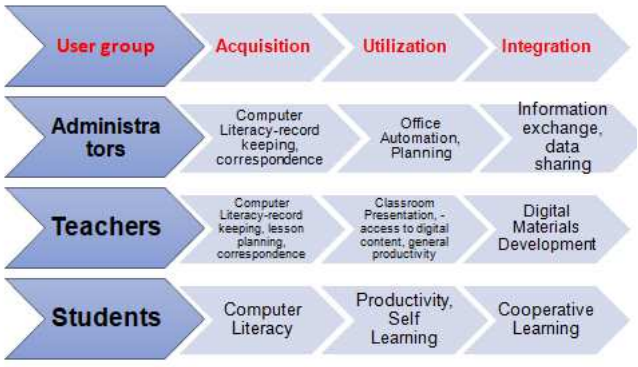

Fig. 1 A roadmap for BED Institutions by Espiritu

D. Legal Bases

The Republic of the Philippines believes in the utilization of ICT in its services because it wants to "promote digital literacy, ICT expertise, and knowledge-building among citizens to enable them to participate and compete in an evolving ICT age" [29] as cited from the RA 10844, among other purposes. With that, the Department of Education also expressed its shared goals of the country through adopting ICT in its curriculums, especially the most recent K to 12 Basic Education Curriculum as demarcated in section 18 of the Department of Education Order No. 021, series of 2019, otherwise known as the "Policy Guidelines on the K to 12 Basic Education Program". Section 18 paragraph *a* stated that:

> "*18. The K to 12 graduate is a holistically developed Filipino who has built foundations for learning throughout life. They are individuals equipped with information, media and technology skills, learning and innovation skills, life and career skills, and communication skills necessary to tackle the challenges and take advantage of the opportunities of the 21st century. These skills are defined and described as follows.*"
>
> *Information, media, and technology skills deal with various sub-skills such as visual and information literacies, media literacy, essential, scientific, economic, and technological literacies, multicultural literacy, and global awareness. These skills allow learners to navigate the fluid and dynamic environment of knowledge creation and acquisition."* [14].

E. The Present Study

To prosper in a knowledge-based economy in the twenty-first century, a workforce with the necessary skills and digital literacy is required. By improving academic performance, encouraging critical thinking, and reducing the digital divide among students, information and communication technologies (ICT) have many positive effects on education [1], [11], [37] However, in spite of its acknowledged benefits, the Philippines routinely receives below-average scores in international evaluations, underscoring the necessity of better educational standards, especially in the area of digital literacy [15], [23].

This research addresses this gap by investigating the digital literacy skills of Senior High School students at Biasong National High School (BNHS). This study is framed by the Digital Divide Theory [18], which identifies four important access points: usage, material, motivational, and skills:

- Determine the precise digital literacy gaps that BNHS students are experiencing at each access point.
- Examine the variables influencing these disparities, considering student attitudes toward ICT, school resources, and socioeconomic backgrounds.
- Provide suggestions for focused improvement initiatives to close the BNHS's identified gaps in digital literacy.

Although the digital divide and its effects on educational attainment have been studied in the past [22], [32], many of these studies have concentrated on local or national trends. This study goes farther, looking at the state of digital literacy in a particular educational setting. Furthermore, current research frequently gives access to technology a higher priority than usage and skill development [25], [27]. Through an evaluation of each of the four access points listed in the Digital Divide Theory, we hope to offer a more comprehensive understanding.

This study could make a major contribution to improving knowledge and digital literacy practices in educational institutions. We can create focused interventions that cater to the individual needs of BNHS students by identifying the precise digital literacy gaps they encounter. The results can

also serve as a model for other schools facing similar challenges, helping Biasong National High School develop effective digital literacy programs. The ultimate goal of this research is to help close the digital divide and provide students with the fundamental knowledge and abilities they need to thrive in the twenty-first century.

II. Materials and Method

A. Design

This study employed a descriptive-correlational research design to thoroughly examine the subject matter. Following established methodology, the researcher integrated the Learning Analytics Cycle, a renowned framework introduced by [30], which encompasses four key components: Learners, Data, Metrics, and Interventions. The research journey commenced by targeting Senior High School students who were enrolled in the General Academic Strand - Academic Track, with a specific focus on Biasong National High School, as outlined in the Study Flow.

To accomplish its objectives, this study used a descriptive-correlational design. We can determine the level of digital literacy at Biasong National High School (BNHS) with surveys that evaluate students' skills and access. It would not prove cause-and-effect relationships, unlike experimental designs, but it can show possible relationships between things like material access, skills access, motivational access, and material access. This data is essential to answering our research questions, which seek to pinpoint specific deficiencies in digital literacy and investigate factors that may be contributing within the educational setting.

B. Flow of Study

The study adhered to the input, process, and output framework to guide its progression. During the input phase, the study identified and addressed the research problems at hand. The process phase involved formulating a comprehensive questionnaire, collecting relevant data, organizing the acquired information, and conducting a meticulous analysis. Ultimately, the study will yield an output in the form of a tailored enhancement program, contextualized to address the identified issues.

C. Environment

The study was conducted at Biasong National High School, Biasong, Balamban, Cebu (10.53129, 123.75781) with School ID number 305725. The school officially operates as Biasong National High School after the DepEd Regional Office approved its operation for Region VII in August 2019. Although established in 2008, the school went through a series of affiliations with other schools. It went through from being Biasong Integrated School to Buanoy National High School – Biasong Extension to Milan-Cantuod National High School – Biasong Extension to its legitimate name duly accredited by the DepEd. Due to its metamorphological developments, the school faces several challenges. Due to technical, financial, and legal constraints, the school lacks support facilities, including a Computer Laboratory, and has not received provision of computers and other gadgets from the national government. Hopefully, the school will receive immediate support for this. The school is at Biasong, Balamban, Cebu, a rural barangay. Its neighboring barangays are Cantuod, Nangka, Singsing, Vito, Hingatmonan, and Liki of the Municipality of Balamban. It also has neighboring barangays from the Municipality of Asturias, Ubugon, and San Isidro.

However, most of the students at the school are from Biasong, with a few outliers from San Isidro, Ubugon, Liki, and Vito since there are nearby high schools established, such as Nangka National High School in Brgy. Nangka, Milan-Cantuod National High School in Brgy. Cantuod, and LikiIntegrated School in Brgy. Liki. Some also studied at Jose Chona Jo Memorial National High School in Brgy. Cambuhawe, which has a 20-miradius (approximately 8.3 km) from Biasong National High School. In the current school year, the institution is classified as a medium-sized school, accommodating a total of 298 students. Among them, 107 students are enrolled in the Senior High School program, while the remaining students are in the Junior High School. The teaching staff consists of 11 teachers, with 10 assigned as Teacher I for secondary subjects and 1 designated as Teacher II for the Senior High School level. Notably, the School Caretaker position is currently held by the lone Teacher II – SHS. The school's infrastructure has been generously donated by KALAHI-CIDSS, the Provincial Government, and the US Navy, including an abandoned Gabaldon Building, which holds cultural heritage value. The Senior High School offers the General Academic Strand within the Academic Track, comprising one section for Grade 11 and another section for Grade 12.

D. Respondents

The respondents of this study were the 109 enrolled GAS Senior High School Students of Biasong National High School for the School Year 2021-2022. The distribution of the respondents of this study is shown in Table 1.

TABLE I
DISTRIBUTION OF THE RESPONDENTS

Respondents	f	%
Grade 11	68	64
Grade 12	39	36
Total	107	100

1) Instrument:

To assess the levels of digital access and academic performance among the students, the study utilized survey questionnaires developed by [27], [31], [32]. These questionnaires were chosen for their relevance and reliability in capturing the necessary information. Careful consideration was given to aligning the survey questionnaire with the specific variables of interest, ensuring a comprehensive and accurate evaluation of the students' digital access and academic performance.

2) Data Gathering Procedure:

The study was initiated by sending a formal letter of permission to the School Head of Biasong National High School, seeking authorization to conduct the study. Once the researcher received permission, the survey was conducted among the identified Senior High School students who participated as respondents. Before the study, the researcher took the necessary steps to obtain informed consent and approval from the respondents. We engaged in open

discussions with the participants, providing detailed information about the survey's purpose, procedures, expected outcomes, and its potential impact on them and others involved.

To ensure the survey's relevance and consistency in data collection, the researcher carefully selected survey sheets from existing studies and further enhanced them to align with the students' perspectives. Additionally, the researcher obtained permission from the School Head to conduct the survey and organized a brief orientation session for the respondents. During this orientation, the researcher provided a clear rationale for the study, explained its objectives, and discussed the implications of the research. Subsequently, the survey questionnaires were distributed among the participants.

After the data collection phase, the researcher meticulously gathered and tabulated the obtained data. The tabulated results underwent rigorous statistical analysis to ensure accuracy and reliability. Stringent measures were taken to maintain confidentiality and safeguard the participants' information throughout the process. The inclusion of a diverse range of questions in the survey reflected the researcher's attentiveness to the respondents' consciousness, as their level of awareness and understanding could influence the accuracy and dependability of the collected data.

3) Statistical Treatment

The study employed a range of statistical tools to analyze the gathered data effectively. A simple percentage is a statistical method to determine the distribution of respondents across different categories, providing insights into the overall representation of the sample. The weighted mean was utilized to assess the perception of digital literacy among the respondents. By assigning appropriate weights to different factors or variables, a comprehensive understanding of their perception was obtained.

Pearson Product-Moment Coefficient of Correlation (r) was employed in this research to determine if there were any statistically significant differences between the respondents' digital access levels and two factors: age and grades. The coefficient of correlation helped identify potential relationships or associations between these variables. Simple Ranking: The simple ranking technique was employed to determine the relative importance or priority of various issues and concerns. This method allowed systematic evaluation and identification of key areas of focus.

T-Test: The T-test was utilized to assess whether there was a significant difference between the respondents' digital access levels and their gender. This test provided statistical evidence to determine if any disparities existed based on gender. One-Way Analysis of Variance (ANOVA) was used to explore the intercorrelation among different levels of digital access. By comparing the means of multiple groups, the ANOVA analysis helped identify significant variations and patterns among these levels.

By utilizing these diverse statistical tools, the study aimed to provide a comprehensive analysis of the data and draw meaningful conclusions regarding digital literacy, perception, access levels, and associations with various factors such as age, grades, gender, and concerns.

4) Definition of Terms:

The *following* terms are defined operationally and are provided to provide supplemental information to maintain the essence of the study without further deconstruction. These terminologies will be used in the study, especially in the expository presentation of information in this study.

- Academic Performance: The performance of a student enrolled in the K to 12 Curriculum of the Philippines. It is a numerical value interpreted to assess the quality of learning a student while in formal basic education.
- Achievement Rate: It is one of the many school performance indicators interpreted as how much the students collectively perform in their summative tests. The following formula can compute it:

$$= \frac{MPSPresentSY - MPSPreviousSY}{PerformanceTarget} \times 100$$

  The difference between the Mean Percentage Scores (MPS) of the current school year and the previous school year and be divided by the performance target of 75% and multiplied by 100. MPS indicates the ratio between the number of correctly answered items in a test and the total number of items.
- Basic Education: It is the formal education regulated by the Department of Education. It consists of primary and secondary education as stated in the laws and orders of the Philippines.
- Contextualized Enhancement Activities: These are remedial activities provided to learners identified with below average performance in the assessment of a competency in order to control these students “at risk of dropping out” from the current grade they enrolled in the school. These learners undergo special class to cope with the learning competency they are at risk of failing or acquiring a grade of below 75 (Did Not Meet Expectation) in a particular subject.
- Digital access: Based on [10], digital access is the continuing process of getting access to hardware and software, its updates, peripheral equipment, and subscription. This consist of four levels: motivational access, material access (physical access), skills access, and usage access.
- Digital divide: It is the social gap between persons with access to digital technology versus those who do not.
- Digital literacy: “The ability to access, manage, understand, integrate, communicate, evaluate and create information safely and appropriately through digital technologies for employment, decent jobs, and entrepreneurship. It includes competencies that are variously referred to as computer literacy, ICT literacy, information literacy, and media literacy.” [33].
- ICT Integration: It is utilizing Information and Communication Technology in the teaching-learning process.
- ICT Skills: These are Information and Communication Technology skills used to accomplish a specific task with the use of digital technology such as computers.
- Material access: It is also called *Physical Access*. [18] regarded it as one of the four levels of digital access. It refers to the capability of a person to own or immediately use a digital equipment.

- Motivational access: It is also referred to as *motivation, attitude, intention, and social support*. It is one of the four levels of digital access of [18]. It refers to the socio-emotional aspect of an individual and their perception of digital technology.
- Skills access: It is one of the four levels of digital access of [18]. It refers to the skills acquired, applied, and mastered to navigate and utilize effectively and efficiently a digital resource.
- Usage access: It is one of the four levels of digital access of [18]. It refers to the reasons and the frequency of manipulating a digital resource.

III. Results and Discussion

According to the findings presented in Table 2, it can be observed that the age distribution of the respondents is as follows:

- The majority, comprising ninety-two (92) respondents, or 86 %, fall within the age range of 16-17.
- There are ten (10) respondents, accounting for 9 %, who belong to the age range of 20-23.
- Two (2) respondents, representing 2 %, are within the age range of 24-26.
- Three (3) respondents, comprising 3 %, are 27 years old or older.

Among the total of 107 respondents, the study consisted of fifty-seven (57) participants, accounting for approximately 53 %, who identify as males. On the other hand, fifty (50) respondents, or 47 %, identify as females. These proportions indicate a relatively balanced gender distribution within the sample. It is worth noting that the majority of the respondents, comprising a significant proportion of the sample, fall within the age range of 16 to 19 years old.

TABLE II
AGE AND SEX OF THE RESPONDENTS

Age and Sex	Male		Female		Total	
	f	%	f	%	f	%
27 and above	0	0	3	3	3	3
24-26	0	0	2	2	2	2
20-23	6	6	4	4	10	9
16-19	51	48	41	38	92	86
TOTAL	**57**	**53**	**50**	**47**	**107**	**100**

A. Gadgets at Home

Table 3 provides a comprehensive ranking of the most commonly available gadgets among the respondents, listed in descending order: smartphones, radio, Cable TV, basic mobile phones, non-cable TV, laptops, tablets, and desktop computers.

TABLE III
GADGETS AT HOME

Gadget	f	Rank
Smart phone	97	1
Radio	50	2
Cable TV	39	3
Basic Mobile phone	29	4
Non-Cable TV	18	5
Laptop	9	6
Tablet	8	7
Desktop computer	6	8

It is noteworthy to highlight the significant difference of 47 between the frequencies of smart phones and radio. This gap of 47 demonstrates the widest margin among the gadgets when considering the difference in frequencies between consecutive ranks. This substantial difference emphasizes the prevalence and popularity of smartphones among the respondents compared to radio. Additionally, examining the subsequent gaps between frequencies yields further insights into the distribution of gadgets. The disparity between radio and Cable TV amounts to 11, indicating a relatively smaller margin compared to the gap observed between smartphones and radio.

Furthermore, the difference between Cable TV and basic mobile phones is 10, suggesting a moderate difference in availability between these two gadgets. Similarly, the variance from basic mobile phones to non-cable TV is 11, indicating a comparable margin. Analyzing the subsequent gaps, the difference between non-cable TV and laptops is 9, reflecting a relatively smaller variance in availability. The gap from laptops to tablets narrows down to 1, indicating a marginal difference. Lastly, the difference between tablets and desktop computers amounts to 2, suggesting a moderate variance between these two gadgets.

By presenting the ranking and highlighting the differences between the frequencies, Table 3 offers a comprehensive overview of the availability and popularity of various gadgets among the respondents. This information allows for a better understanding of the distribution and usage patterns of these devices within the study population. The data presented in Table 3 highlights that smartphones are the most accessible gadget among the respondents, with 91% of them indicating ownership. On the other hand, the least accessible gadget is the desktop computer, which is only owned by 7% of the respondents. This significant difference implies that smartphones are widely considered one of the most convenient digital tools for the younger generation [29].

Moreover, smartphones play a crucial role in the daily lives of young people. They serve as essential tools for various purposes. Considering the respondents' average economic situation, smartphones can effectively replace most of the other listed devices. They can function as radios, televisions, laptops, tablets, and even desktop computers, especially when connected to a stable internet connection. Therefore, the inclusion of smartphones as the most accessible gadget suggests that the academic processes and educational experiences of the respondents are likely to revolve around the use of such devices.

By acknowledging the prevalence and convenience of smartphones, the study recognizes the transformative potential of these devices in facilitating learning and academic activities. With this understanding, the forthcoming presentation of the study's results can shed further light on the impact of smartphones on academic processes and provide insights into how these devices shape and influence education within the context of the research.

B. Final Grades

The final grades of the respondents have been categorized according to the guidelines outlined in the Department of Education Order No. 8, s. 2015, commonly known as the "Policy Guidelines on Classroom Assessment for the K to 12

Basic Education Program." Analyzing the results reveals the following distribution:

Among the respondents, 13 individuals have achieved Outstanding grades, demonstrating exceptional academic performance. A total of 25 respondents has attained Very Satisfactory grades, indicating a high level of competence and proficiency. Satisfactory grades have been obtained by 52 respondents, suggesting a solid level of achievement and meeting the expected standards. Additionally, 17 respondents have achieved Fairly Satisfactory grades, indicating a reasonable level of accomplishment.

Notably, it is worth mentioning that no respondents received Did Not Meet Expectation grades. This implies that all participants in the study have met or exceeded the established academic expectations, which is a positive outcome. By aligning the final grades of the respondents with the specified policy guidelines, the study provides valuable insights into the academic performance and achievements of the participants. The distribution of grades across different categories reflects the diversity of the respondents' academic abilities and highlights the successful attainment of educational standards [34].

These findings contribute to a comprehensive understanding of the academic landscape and provide a foundation for further analysis and interpretation of the research results.

TABLE IV
FINAL GRADES OF THE RESPONDENTS, SY 2021-2022

Grades	f	Verbal Description
90-100	13	Outstanding
85-89	25	Very Satisfactory
80-84	52	Satisfactory
75-79	17	Fairly Satisfactory
0-74	0	Did Not Meet Expectation

The analysis of the respondents' final grades reveals interesting patterns. Specifically, 49 % of the respondents received grades within the range of 80 to 84, representing a significant portion of the sample. A notable observation is the substantial gap between Satisfactory grades and Very Satisfactory grades, with the latter comprising 25.23 % or 27 respondents. Moreover, a slightly larger gap of 32.71 % or 35 respondents exists between Satisfactory grades and Fairly Satisfactory grades. In comparison, the group of 13 respondents who achieved Outstanding grades, accounting for 12.14 % of the total, falls just below the number of respondents in the Fairly Satisfactory grades category.

The concentration of grades around the Satisfactory level, with limited representation in the Fairly Satisfactory, Very Satisfactory, and Outstanding grades, and the absence of Did Not Meet Expectation grades, suggests that the students are performing at an average academic level. This finding aligns with the notion that Filipino students face challenges in their academic progress, as reported by [35]. To signify significant progress in the students' education, there is a need to consolidate their grades toward the thresholds between Outstanding grades and Above Satisfactory grades, while minimizing the number of lower-tier grades such as Fairly Satisfactory and Did Not Meet Expectation.

It is important to note that 52 respondents received Satisfactory grades, indicating an average level of performance. However, relying solely on these grades may not provide a strong foundation for academic achievement. These grades can either remain stagnant, decline towards Fairly Satisfactory and Did Not Meet Expectation, or improve towards Very Satisfactory and Outstanding. Thus, there is a need for continuous efforts to enhance educational outcomes and ensure students' progress beyond the average level.

Considering these observations, it becomes evident that the distribution of grades among the respondents highlights the need for targeted interventions and strategies to support their academic growth. By focusing on elevating performance and reducing the number of lower-tier grades, educational institutions can work towards enhancing student achievement and fostering a culture of excellence.

C. Digital Access Levels

1) Motivational Access Level:

Table 5 presents the motivational access levels of the respondents across 20 different situations. The data reveal that in 16 of these situations, the majority of respondents agreed. Notably, the respondents registered a neutral response in situations 2, 3, and 10, indicating a lack of strong agreement or disagreement. However, situation 12 stands out as the only scenario where the respondents strongly agreed.

TABLE V
MOTIVATIONAL ACCESS

No	Situation	$\bar{x}$	Verbal Description
1	Want to use a gadget and they do not own one, they can borrow from their family easily.	3.84	Agree
2	Want to use a desktop computer and they do not own one, they can rent a computer in the internet café.	3.05	Neutral
3	Want to use a gadget and they do not own one, they can borrow from their friends easily.	3.21	Neutral
4	Want to use a gadget and they do not own one, they would look for other possible good ways just to use it.	4.01	Agree
5	The respondents want to own, rent, or borrow a smart phone for any usage.	3.92	Agree
6	Want to own, rent, or borrow a laptop for any usage.	3.75	Agree
7	Want to own, rent, or borrow a tablet for any usage.	3.78	Agree
8	Want to own, rent, or borrow a desktop computer for any usage.	3.77	Agree
9	Want to own, rent, or borrow a smart tv for any usage.	3.65	Agree
10	Finding time to use any highly digital devices.	3.36	Neutral
11	Learning to use any highly digital devices easily.	3.60	Agree
12	Highly digital devices they use are essential for them as students.	4.34	Strongly Agree
13	Connecting to the internet makes their study easier.	4.01	Agree

No	Situation	$\bar{x}$	Verbal Description
14	Unstable network condition in their area is not a hindrance to use any highly digital devices.	3.65	Agree
15	They can use any digital devices to help them get good grades.	3.47	Agree
16	Highly digital devices make students more productive.	3.84	Agree
17	The price of any digital device does not matter as long as they are learning to use it.	3.49	Agree
18	Any digital devices can help other struggling students.	3.79	Agree
19	More digitally immersed person will have a good-paying job or business sooner.	3.93	Agree
20	Everyone must learn to use at least one highly digital device.	4.11	Agree
	Average Weighted Mean	**3.73**	**Agree**
	Legends: 4.20-5.00 – Strongly Agree; 3.40-4.19 – Agree; 2.60-3.39 – Neutral; 1.80-2.59 – Disagree; 1.00-1.79 – Strongly Disagree		

Analyzing the average weighted mean, which is calculated as 3.73, we can interpret the overall response as "Agree." This weighted mean signifies a general inclination towards agreement among the respondents regarding the motivational access levels examined in the study. The results presented in Table 5 demonstrate a positive outlook on motivational access across the majority of situations, as evidenced by the high number of agreement responses. However, the presence of neutral responses in a few instances suggests the need for further exploration and understanding of the factors influencing motivational access levels in those specific scenarios.

By acknowledging the respondents' agreement in most situations and the overall "Agree" characterization based on the average weighted mean, the study highlights the importance of motivational factors in shaping access to resources. These findings contribute to our understanding of how motivation can impact individuals' engagement and involvement in various contexts, providing insights that can inform the design of interventions and strategies aimed at fostering positive motivational environments.

The data gathered suggests that the respondents generally perceive the digital devices they use as important tools in their lives. Interestingly, it also indicates that the respondents recognize the value of smart phones, even if they do not personally own one. However, it is worth noting that a neutral response was recorded in situations 2 and 3, implying that the respondents may be less motivated to make additional efforts, such as visiting internet cafes or borrowing gadgets from their friends. Additionally, the findings suggest that the respondents face some difficulties in managing their time to use digital devices effectively.

On a positive note, the data reveals that the respondents strongly believe that utilizing digital devices can contribute to their academic success. This aligns with the "Agree" response recorded for situation 1, indicating that the respondents perceive their families as supportive in assisting with learning tasks. Furthermore, the respondents display a willingness to explore alternative ways to maximize the use of digital devices, as indicated by the "Agree" response for situation 4.

In situations 5 to 9, the respondents demonstrate motivation in owning, renting, or borrowing various digital devices, including smartphones, laptops, tablets, desktop computers, and smart TVs. **This** suggests that the respondents are eager to gain firsthand experience with these different gadgets and are open to utilizing them for their academic pursuits.

Moreover, the respondents' motivation to excel in their studies is evident in the "Agree" responses for the remaining situations. They believe that using digital devices can enhance their schooling experience, lead to better grades, increase productivity, and improve their effectiveness both in the present and in the future beyond senior high school.

Overall, these findings highlight the positive attitudes and motivations of the respondents towards digital devices and their potential impact on academic outcomes. It is important to leverage these motivations and provide appropriate support to help students effectively integrate digital devices into their learning processes, thereby enhancing their educational experiences and prospects.

2) Material Access:

Table 6 further reveals that the 1.31 average weighted mean indicates that respondents struggle with using actual devices. Most of the respondents can neither own, borrow, nor rent a laptop, tablet, smart TV, or desktop computer. However, among the 5 situations presented in this table, only the first situation is agreed upon by most respondents. The material access of the respondents indicates that there are actual device acquisition concerns that need to be addressed. The 1.31 average weighted mean also reflects the demographic background, specifically the economic background, of the respondents, in which most of them come from low-income-generating families, where basic needs must be addressed first before acquiring costly digital devices.

TABLE VI
MATERIAL ACCESS

No	Situation	$\bar{x}$	Verbal Description
1	Own, borrow, or rent easily a smart phone and use it.	1.84	Agree
2	Own, borrow, or rent easily a laptop and use it.	1.19	Disagree
3	Own, borrow, or rent easily a tablet and use it.	1.14	Disagree
4	Own, borrow, or rent easily a smart TV and use it.	1.28	Disagree
5	Own, borrow, or rent easily a desktop computer and use it.	1.09	Disagree
	Average Weighted Mean	1.31	Disagree
	Legends: 1.56 – 2.00 – Agree; 1.00 – 1.55 - Disagree		

3) Skills Access:

The Table 7 reveals that the average weighted mean of 3.16, which is interpreted as “Nearly Mastered”, indicates that the respondents’ skills in web browser navigation and file management (situations 1-7), document preparation (situations 8-12), slides presentation (situations 13-16), and spreadsheet productivity (situations, needs more reinforcement. The respondents must be trained to acquire more techniques and means in performing the different skills presented. Among the different subset of skills, web browser

and file management have the skillset that most of the respondents would likely to prefer since most of the respondents fully mastered opening a new tab of a web browser such as Google Chrome, Mozilla Firefox, and Microsoft Edge. The respondents also mastered the other basic web browser and file navigation skills such as streaming videos and music online in YouTube, Spotify, and Netflix, using search engines specifically Google, downloading files, and installing software. It is also worth to note that the respondents also mastered the cut, copy, and paste skills.

TABLE VII
SKILLS ACCESS

No	Situation	$\bar{x}$	Verbal Description
1	Use search engine	3.90	Mastered
2	Download files	3.75	Mastered
3	Install software	3.72	Mastered
4	Bookmark webpages	3.07	Nearly Mastered
5	Open new tab	4.20	Fully Mastered
6	Stream videos and music in YouTube, Spotify, Netflix, etc.	4.06	Mastered
7	Send emails [Google Mail, Yahoo Mail, MS Outlook]	3.18	Nearly Mastered
8	Create and save file is Microsoft Word	2.93	Nearly Mastered
9	Adjust the font style, size, color, and line spacing	3.26	Nearly Mastered
10	Italicize, bold and underline texts	3.06	Nearly Mastered
11	Cut, copy, and paste	3.95	Mastered
12	Insert image in MS Word	2.96	Nearly Mastered
13	Create and save file in MS PowerPoint	2.64	Nearly Mastered
14	Create and delete slides	3.18	Nearly Mastered
15	Change background of the slides	3.18	Nearly Mastered
16	Insert image in MS PowerPoint	2.50	Partly Mastered
17	Create and save file in MS Excel	2.51	Partly Mastered
18	Create a table in MS Excel	2.28	Partly Mastered
19	Add, subtract, multiply functions.	2.56	Partly Mastered
20	Apply conditional formatting of the cells. Add, subtract, multiply functions.	2.37	Partly Mastered
	Average Weighted Mean	**3.16**	**Nearly Mastered**
	Legends: 4.20-5.00 – Strongly Agree; 3.40-4.19 – Agree; 2.60-3.39 – Neutral; 1.80-2.59 – Disagree; 1.00-1.79 – Strongly Disagree		

Among the 20 skills presented, 9 of these are nearly mastered by the respondents. Four skills are developed through document preparation using Microsoft Word or Google Docs, three through slide presentations with Microsoft PowerPoint or Google Slides, and two through web browsing and file management. To wit, these skills are: adjusting the font style, size, color and line spacing, sending emails using Google Mail, Yahoo Mail or MS Outlook, creating and deleting slides, changing the background of the slides, bookmarking web pages, italicizing, bolding, and underlining texts, inserting images in MS Word, creating and saving files in MS Word or Google Docs, and creating and saving files in MS PowerPoint or Google Slides.

The remaining 5 skills were partly mastered. These partly mastered skills were all of the spreadsheet productivity and a slides presentation skill. The following skills are found to be the least mastered among the 20 skills used in the survey: adding, subtracting, and multiplying functions, creating and saving spreadsheets using MS Excel, inserting images in MS PowerPoint, applying conditional formatting of the cells, and creating a table in MS Excel.

Based on the exposition, the respondents need to undergo skilling sessions on all of the ICT skills measured on this study because an average weighted mean of 3.16 or Nearly Mastered description would highly suggest that the Skills Access of the respondents are neither good nor bad.

4) Usage Access:

Table 8 shows that the average weighted mean of the Usage Access is 3.95, described as "Usually". This indicates that the respondents spend more time on using digital devices. However, it is interesting to note that by ranking the 5 situations, the respondents use digital devices because of entertainment reasons. Social networking usage also comes first before school-related activities. Surfing websites of interest and playing online games come the least, respectively. However, all of the situations given, all of these have a "Usually" descriptions. Therefore, the respondents, in all situations given, usually find time to use digital devices in whatever purposes.

TABLE VIII
USAGE ACCESS

No	Situation	$\bar{x}$	Verbal Description
1	Surfing websites of interest	3.95	Usually
2	Playing online games	3.57	Usually
3	Entertainment (Streaming music and videos)	4.10	Usually
4	Social Networking	4.09	Usually
5	School-related activities	4.04	Usually
	Average Weighted Mean	**3.95**	**Usually**
	Legends: 4.20-5.00 – Strongly Agree; 3.40-4.19 – Agree; 2.60-3.39 – Neutral; 1.80-2.59 – Disagree; 1.00-1.79 – Strongly Disagree		

5) Summary of the Digital Access Levels:

Table 9 shows that the digital literacy of the respondents is considered as "Good" due to reaching a factor average mean of 3.04. This means that even if respondents have a gap in the Material Access level, their Motivational Access and Usage Access come above average. At the same time, their Skills Access indicates that respondents need up-skilling sessions.

TABLE IX
SUMMARY TABLE OF THE LEVEL OF DIGITAL LITERACY

No	Factors	$\bar{x}$	Verbal Description
1	Motivational Access	3.73	Agree
2	Material Access	1.31	Disagree
3	Skills Access	3.16	Nearly Mastered
4	Usage Access	3.95	Usually
5	Factor Average Mean	3.04	Good

6) Digital Access and Age:

Table 10 shows that there is a very low positive correlation between the respondents' digital literacy and age. Furthermore, it is also worth noting that there is a low positive correlation between Motivation Access and Overall Digital Access (r=0.398, p<0.01), and Skills Access and Usage Access (r=0.398, p<0.01). This implies that, although the correlation value is slightly higher than that of the other intercorrelations of factors, it still shows low correlation. However, there is a moderate positive correlation between Skills Access and the Overall Digital Access (r=0.643, p<0.01) and Usage Access and Overall Digital Access Levels (r=0.516, p<0.01). The moderate correlation indicates that the ICT skills and frequency of using digital devices are primarily relevant in achieving digital literacy, even if the respondents are less motivated or hardly able to access digital devices.

TABLE X
SIGNIFICANT RELATIONSHIP BETWEEN DIGITAL ACCESS AND AGE

	Age	laterial ccess	Motivational Access	Skills Access	Usage Access	Overall Digital Access
Age	1					
Material Access	0.110	1				
Motivational Access	0.036	0.001	1			
Skills Access	0.023	.239*	.266**	1		
Usage Access	0.090	0.117	.232*	.398**	1	
Overall Digital Access	0.125	0.183	.398**	.643**	.516**	1

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

7) Digital Access Levels and Sex

As seen in Table 11, there are no significant differences among all of the digital access levels and the overall digital access itself. However, it is noted that the male respondents registered higher mean scores in the different levels except the Material Access where the female counterparts registered more mean scores than their male counterparts.

TABLE XI
INDEPENDENT SAMPLE T-TEST OF DIGITAL ACCESS WHEN ANALYZED BY SEX

	Sex	N	Mean	SD	SE	t
Overall Digital Access	Male	47	3.0426	0.46426	0.06772	0.353**
	Female	60	3.0167	0.29063	0.03752	
Material Access	Male	47	1.2851	0.23496	0.03427	-0.926
	Female	60	1.3267	0.22689	0.02929	
Motivational Access	Male	47	3.8032	0.42751	0.06236	1.456
	Female	60	3.6683	0.50998	0.06584	
Skills Access	Male	47	3.3362	0.72791	0.10618	2.563**
	Female	60	3.0275	0.51695	0.06674	
Usage Access	Male	47	3.9574	0.73062	0.10657	0.803
	Female	60	3.9467	0.60491	0.07809	

**p<0.01, *p<.05

8) Digital Access Levels and Academic Achievement:

Table 12 shows that the intercorrelation among the digital access levels and the academic achievement mostly shows very low to low positive correlation. However, it is interesting to note that there is a very low negative correlation between Material Access and Final Grades (r=-0.055, p<0.05), Usage Access and Final Grades (r=-0.110, p<0.05), and the Overall Digital Access Level and the Final Grades (r=-0.010, p<0.05). The table also registered a moderate significant correlation with Skills Access and Overall Digital Access (r=0.643, p<0.01), and Usage Access and Overall Digital Access (r=0.516, p<0.01). With this, it is deduced that the grades of the respondents do not correlate with their material access, usage access, or the overall digital access. Thus, the respondents' final grades have no strong correlation with their digital access levels.

TABLE XII
SIGNIFICANT RELATIONSHIP BETWEEN DIGITAL ACCESS AND FINAL GRADES

	Material Access	Motivational Access	Skills Access	Usage Access	Overall Digital Access	Final Grades
Material Access	1					
Motivational Access	0.001	1				
Skills Access	0.239*	0.266**	1			
Usage Access	0.117	0.232*	0.398**	1		
Overall Digital Access	0.183	0.398**	0.643**	0.516**	1	
Academic Achievement	-0.055	0.167	0.117	-0.110	-0.010	1

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

9) Inter-correlation among the 4 Digital Access Levels:

The computed p-value of the factors is 0.000 is lesser than the 0.05 level of significance, thus the null hypothesis is rejected. Hence, there is a statistically significant difference at the 0.05 level of significance in the digital access levels mean scores of the respondents. The statistically significant difference shows that the digital access levels may vary from each other. It means that the different access levels may be different from each other (See Table 13). With the numbers suggesting that there is indeed a significant difference in the four digital access levels, it means that we cannot tell that high motivational access level are being skillful in ICT; motivational levels cannot guarantee that it can also produce a good usage access level; and the material access levels cannot also provide assurance that it could also produce good skills and usage access, to wit, for example.

However, schoolteachers and administrators may take it as an advantage to focus on a specific access level without compromising or considering the other levels. Teachers may focus on improving their ICT skills which the school provides.

TABLE XIII
INTERCORRELATION AMONG THE 4 DIGITAL ACCESS LEVELS

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Factor	3	523	174.339	534.15	0.000
Error	424	138.4	0.326		
Total	427	661.4			

10) Issues and Concerns met by the respondents:

In Table 14, it is deduced that the respondents' conflict with the other activities is the first among the different issues and concerns that the respondents face. A 6-person gap and insufficient load/data allowance are other hindrances identified by the respondents. The respondents also expressed their concern about the lack of available gadgets and unstable mobile/internet connection. The other issues and problems have a massive gap with their predecessors in their ranking. The respondents' difficulty in reading is the least identified issue and concern.

TABLE XIV
ISSUES AND CONCERNS

Issues and Concerns	f	Rank
Conflict with other activities (example: house chores)	89	1
Insufficient load/data allowance	83	2
Lack of available gadgets/equipment	79	3
Unstable mobile/internet connection	78	4
Distractions (i.e., social media, noise from community/neighbor)	77	5
No or lack of available space for studying	61	6
Existing health condition/s	51	7
Difficulty in independent learning	37	8

These results suggest that respondents must plan their activities, considering their most available resources, workload, learning style, and other factors. Their parents and guardians are expected to be well-coordinated and well-communicated with their teachers and the students as well.

11) Findings

After the data were tabulated and gathered, the following results were drawn. The respondents' ages are mostly 16-19, with a few students aged 20 and older. These students comprise 14% of the respondents when compared to the total population. Furthermore, there are slightly more male respondents than female respondents, which shows a 53:47 percentage ratio. It is also worth noting that male respondents' ages range from 16 to 23, while the female respondents' ages range from 16 to 28 years old.

Using smartphones as the most common digital device, which is most accessible to them, while a desktop computer is the least owned. It is also worth noting that there is a significant gap between the smartphone and its second-place competitor, the radio. The other gadgets also show a few gaps with their ranking predecessors. There is a concentration of the respondents' grades on the Satisfactory level, with a few instances of Fairly Satisfactory, Very Satisfactory, and Outstanding grades, and no existing Did Not Meet Expectation grades. It shows that the students are at an average academic level.

The respondents are highly motivated to use digital devices, primarily because they believe these devices can help them excel in their studies. After the table has been tabulated, it is found that the highest and prominent situation in the motivational access level is "I believe that the highly digital devices that I use are essential to me as a student." It has a mean of 4.34 or Strongly Agree. On the other hand, it has also been found that the lowest scored situation in the motivational access level is "If I want to use a desktop computer and I do not own one, I can rent a computer in the internet café." It has a mean of 3.05 or Neutral.

Based on the findings on the material access levels of the respondents, the respondents have a material access gap. The result shows that the respondents have difficulty using actual devices. Most of the respondents are unable to own, borrow, or rent a laptop, tablet, smart TV, or desktop computer. However, among the 5 situations presented in this table, only the first situation "I own, borrow or rent a smartphone easily and use it," most of the respondents agree on. It has a mean of 1.84.

The respondents' skills in web browser navigation and file management, document preparation, slide presentation, and spreadsheet productivity need more reinforcement. The respondents must be trained to acquire additional techniques and means to perform the different skills presented. The respondents find opening a new tab the easiest ICT skill, and they find creating an MS Excel table the hardest. The respondents spend more time using digital devices. However, it is interesting to note that by ranking the five situations, the respondents use digital devices for entertainment reasons. Social networking usage also comes first before school-related activities. Surfing websites of interest and playing online games come last, respectively.

The respondents have a gap in Material Access level; their Motivational Access and Usage Access come above average, while their Skills Access indicates that the respondents need up-skilling sessions. There is a generally very low to low positive correlation between these two. It must be deduced that the age of the respondents does not matter much on the levels of their digital access.

There is no significant relationship between the two. Therefore, sex is not statistically relevant to the digital access levels of the respondents. There is a generally very low positive and negative significant correlation between the two. It is deduced that the grades of the respondents do not correlate with their material access, usage access, and the overall digital access. Thus, the respondents' academic achievement has no strong correlation with their digital access levels.

Based on the findings on the intercorrelation among the different digital access levels, there is a statistically significant difference at the 0.05 level of significance in the mean scores of the respondents ' digital access levels. The statistically significant difference indicates that digital access levels may vary significantly. It means that the different access levels may be different from each other. It is deduced that the respondents' difficulty in independent learning ranks first among the various issues and problems that the respondents face. A 6-person gap and insufficient load/data allowance are other hindrances identified by the respondents. The respondents also expressed their concern about the lack of available gadgets and unstable mobile/internet connection.

IV. CONCLUSIONS

The Senior High School students of Biasong National High School in School Year 2021-2022 have a good level of digital access. However, they primarily rely on using smartphones in digital devices. Their age, sex, and academic achievement do not affect their digital access level. The subcomponents of digital literacy are also independent of each other in such a way that it does not correlate much with the different aspects. They also have limited access to materials, which means that they cannot easily use devices other than smartphones. They use their smartphones primarily for entertainment purposes. However, they use their smartphones when they need them for school and other purposes. They also have an average level of ICT skills, particularly in web browsing. They need to receive additional training in ICT skills, focusing on document preparation, slide presentations, and sheet production, as these are essential entry-level ICT skills. They also express concern about finding the right moment to do tasks, as they struggle to finish or focus on tasks when easily disturbed by other activities.

The Senior High School students of Biasong National High School, Biasong, Balamban, Cebu must have an integration with contextualized enhancement activities in their lessons. The enhancement activities will not be sex-specific, age-specific, or grade-specific. Thus, the contextualized enhancement activity must be actual and be done by all senior high school students. The contextualized enhancement activity can be done by using a smartphone in offline mode. The teachers can provide activities using free, offline mobile phone applications.

To provide a clear-cut approach to integrating digital literacy into lessons across different senior high school subjects, an example from the preceding chapter can be considered a recommendation, as it aligns with the various facts and figures gathered from this study. These results suggest several actions to improve BNHS students' digital literacy. One approach is Targeted Skills Development, which involves including hands-on ICT skill development workshops in the curriculum. These workshops should emphasize the development of fundamental abilities, such as spreadsheet usage, presentation design, and document creation. Given that the students have limited access to materials, these workshops can be created explicitly for smartphones or inexpensive computers.

Promote the use of mobile learning apps for subject-specific learning activities and offline skill development. Instructors can use easily accessible and free mobile apps to curate playlists or create assignments. This method encourages focused learning by leveraging the students' prior familiarity with smartphones. Offer specialized workshops or integrate time management and focus techniques into existing classes. These techniques can help students effectively manage digital distractions and finish assignments.

Develop activities that utilize smartphones to deliver subject-specific learning in a contextually relevant manner. This will guarantee that all students, regardless of age, gender, or grade level, have equal access. These tasks ought to be made as self-contained as possible to reduce reliance on internet access. By implementing these recommendations, BNHS will be able to address the identified gaps in digital literacy and equip students with the fundamental digital skills necessary to thrive in the twenty-first century. The particular cases discussed in the next chapter can serve as valuable tools to demonstrate how these suggestions can be implemented in a variety of subject areas.

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