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DIGITAL LITERACY OF SENIOR HIGH SCHOOL STUDENTS TOWARDS IMPROVING PERFORMANCE IN GENERAL MATHEMATICS

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Abstract

Digital literacy is the ability to access, process, understand, and create information in the digital environment. The increasing reliance on digital technologies for learning and problem-solving is crucial to understanding how digital literacy skills affect students' performance in mathematics. This study aimed to investigate the level of digital literacy and its effect on the performance of Senior High School students in General Mathematics specifically in terms of Computation, Word Processing, and Presentation. The quantitative research design determined the level of digital literacy skills in terms of computation, word processing, and presentation, and the level of performance of Senior High School Students in General Mathematics. A total of 120 respondents from public high school in General Trias City, Cavite were the participants of the study. Results showed that Senior High School Students can achieve a highly extent of digital literacy, particularly in terms of computation, word processing, and presentation skills, which has a positively affect with their performance in General Mathematics. There is a significant effect between the level of digital literacy and the performance of the student in General Mathematics. For the teachers, the learning process should always involve digital tools. Because learning with digital devices can improve students' digital literacy skills. The performance of the student in General Mathematics is Strongly Satisfactory in that it can incorporate digital literacy components into mathematics lessons to help students understand how to use technology to enhance their mathematical skills. The study recommends utilized the digital literacy program towards improving students' performance in General Mathematics. This will help students understand how to use technology to enhance their mathematical skills.

***Keywords**: Digital Literacy, Performance, General Mathematics, Senior High School*

Introduction

Digital literacy is the ability to access, process, understand, and create information in the digital environment. The increasing reliance on digital technologies for learning and problem-solving is crucial to understanding how digital literacy skills affect students' performance in mathematics. The development of technology has also transformed how students learn. Digital literacy skills require further improvement and support. The way students learn in modern times has changed significantly. Limited studies have been conducted on the obstacles faced by Senior High School Students in general education. Still, there is a need to understand their digital literacy levels and their impact on academic achievement, particularly in core subjects like General Mathematics. There is a lack of empirical evidence linking digital literacy to performance in General Mathematics among Senior High School Students.

Digital literacy entails the ability of students to use, analyze, evaluate, and create technology-driven media and materials. Students must develop essential skills and competencies for higher education or the

workforce. Digital literacy covers the physical operations of digital devices and the software operations in those devices UNESCO, (2018). It incorporates the ability to search and navigate, create, communicate and collaborate, think critically, analyze information, and address safety and well-being using various digital technologies. These skills are essential for individuals to participate effectively today.

Digital literacy refers to the skills and competencies needed to use digital technologies to achieve personal goals, enhance employability skills, and support education and training. Digital literacy sits alongside the core skills of Learning, Reading, Writing, Oral Communication, and Numeracy. Joyce S. (2019) acknowledges the importance of digital literacy skills renaming the core foundation skills as Language, Literacy, Numeracy, and Digital Literacy (LLND) skills. The inclusion of digital skills alongside the foundation skills of language, literacy, and numeracy recognizes that digital literacy has become increasingly critical for individuals' participation in the workforce. 'Digital inclusion is not just about computers, the internet, or even technology. It is about using technology as a channel to improve skills, enhance the quality of life, drive education, and promote economic well-being across all elements of society. Digital inclusion is about social inclusion.' Australian Digital Inclusion Index, (2018). Digital literacy skills exist on a continuum with varying degrees of competency required depending on the context (personal and community; workplace and employment; education and training) within which the skills are applied. As the digital world is rapidly changing, as physical devices and software are adapted to meet new possibilities and demands, individuals' skills will change and adapt and consequently, what it means to be 'digitally literate' will also change over time. Bawden, D. (2008) addresses emerging tensions at the conceptual level, but similarly concludes with a framework for educators.

Technology has progressed throughout the twenty-first century and has developed an avenue for easy access to information and resources for learning. Raja & Nagasubramani, (2018). Implementing technology in education is a practice that has been introduced previously in the academy. As technology progresses, education adapts to these changes and incorporates them to improve the quality of learning further. The way students learn in modern times has changed significantly. Students are well-suited to technological advancements and are considered technological natives in the digital era Dingli & Setchell, (2015). Digital literacy is using digital technologies effectively and efficiently to access, evaluate, and use information for a specific purpose. It includes using and navigating digital devices, software, and online platforms and critically analyzing and evaluating online content for accuracy and reliability. Digital literacy also involves understanding digital privacy and security issues and using digital technologies safely and ethically Atoy et al., (2020); Baterna, H.B., Mina, T.D.G., & Rogayan, D.V. Jr., (2020). Technology is just a tool, so it is crucial to use diverse approaches and strategies to help students explore and understand mathematical concepts. The use of technology is ongoing and has many possibilities that enhance student learning in math. Students learn mathematics in a multitude of ways with the use of technology. Through interactive games and visual aids, technology can provide students with hands-on, interactive games and tools that help them learn mathematical concepts better. Drijvers, P. (2015); Hwa, S.P. (2018).

Computational literacy skills is the ability to understand, reason, and interact with complex and abstract systems, including those

driven by computers and algorithms. Developing computational literacy skills involves fostering these abilities to help individuals become more adept at navigating and understanding complex digital systems in real-world settings. Some researchers even argue that computational literacy should be considered as essential as reading, writing, and arithmetic in modern education to emphasize its importance. It's important to highlight that computational literacy goes beyond coding and programming. While these skills are undoubtedly valuable, computational literacy encompasses a broader range of abilities crucial for engaging with digital systems effectively. By honing these skills, individuals can better participate in an increasingly digitized world where technology and data have become core aspects of everyday life. Digital Literacy skills are essential to develop as independent learners in the digital age. Previous studies have shown that digital literacy skills have demonstrated a positive influence on student performance. However, limited studies have been conducted on the issue. Tohara, A. J. T. (2021). The issue of digital divide has received particular attention from international bodies and researchers in Western countries. One of the main reasons for this growing interest is related to the implications that digital inequalities have for social development and particularly for education. Despite the relevance of the issue, there are still few studies on the digital divide in China and even less on Chinese K-12 schools' students. Li, Y. & Ranieri, M. (2013)

Word processing literacy skills are the act of using a computer to create, edit, save, and print documents. Word processing is the writing, manipulating, and storing of textual material in a computerized medium, and it is a tool that has become a vital everyday function in classrooms, offices, and homes. Advanced software features now allow users to move beyond these simple operations to interact with other software, embed multimedia elements into documents, and easily save files in a web-ready format. Word processing is often the first use of computers in classrooms because its capabilities can quickly improve the efficiency of PreK–12 students and teachers alike. Word processors in the classroom can expand the horizons of learning in ways not possible before this technology was available. Users can produce professional-quality documents with the limitless ability to edit, change layouts, and reformat. As students and teachers create documents, the word processor prompts them to consider how the material will appear on the printed page, including choices about margins, spacing, and fonts. By using the spell check feature, students can tell whether a word is spelled incorrectly and often can select the correct spelling.

Presentation literacy skills are essential for your personal and professional life. Learn about effective presentations and how to boost your presentation techniques. Presentation skills are the abilities and qualities necessary for creating and delivering a compelling presentation that effectively communicates information and ideas. They encompass what you say, how you structure it, and the materials you include to support what you say, such as slides, videos, or images.

Digital literacy is essential for academic achievement; we need to take advantage of that technology to make math come alive and give students opportunities to use real data that they can analyze, organize, and communicate with. To incorporate digital literacy into math classes, students should have them do their research and compare data from different sources, then teach them how to organize and evaluate their findings using digital tools such as online calculators, graphing tools, videos, and simulations to understand

mathematical concepts better. Real-world scenarios that require math, such as buying a car, finding a new apartment, or figuring out if a new phone is affordable, can teach students the importance of understanding numbers. Students can research and analyze data at home, applying procedures they've learned. They can present results using digital tools and software can create graphics and visual representations of mathematical concepts to help students understand and interpret the results to make informed decisions. This approach allows students to apply the procedures they've learned and see when they're useful. General Mathematics is a fundamental subject in Senior High School, providing students with essential mathematical concepts, problem-solving skills, and critical thinking abilities. The study aimed to investigate the level of digital literacy skills in computation, word processing, and presentation, and the level of performance of Senior High School Students in General Mathematics. The findings will contribute to a deeper understanding of digital literacy and the performance of the students in mathematics education.

Methods

The study used quantitative methods to measure the level of digital literacy and level of performance in General Mathematics among Senior High School Students. It employs a descriptive research design using questionnaires as the main instrument for data collection. A descriptive research design was utilized in this study to investigate the level of digital literacy and Senior High School Students' performance in terms of Computation, Word Processing, and Presentation. The researcher developed a Digital Literacy Questionnaire which served as the main instrument for gathering data to assess the digital literacy levels among Senior High School Students and the mathematics performance can be assessed through the overall grade in general mathematics. This study focused on 120 grade 12 Senior High School Students at Luis Y. Ferrer Jr. Senior High School in General Trias City, Cavite. They were selected using stratified random sampling to randomly determine the total number of respondents to be taken from the total population.

Results

1. Level of Digital Literacy among Senior High School Students in terms of:

1.1 Computation

Table 3. 1

One Sample Results on the Level of Digital Literacy among Senior High School Students in terms of Computation

Indicators	Mean	Std. Deviation	t	Sig. (2-tailed)	Significance
I can perform basic arithmetic operations (addition, subtraction, multiplication, division) using digital tools	4.63 Very High Extent	.623 Homogenous	19.795	<.001	Significant
I can solve algebraic equations using digital tools	3.81 High Extent	.725 Homogenous	4.657	<.001	Significant
I can create and interpret graphs or charts in digital tools	3.83 High Extent	.706 Homogenous	5.042	<.001	Significant
I can use formulas to perform calculations in digital tools	4.05 High Extent	.754 Homogenous	7.988	<.001	Significant
I can calculate using complex functions in digital tools	3.42 Moderate Extent	.762 Homogenous	-1.197	.234	Not Significant

N= 120 **Test Value=**3.5 **df**=119

Overall Weighted Mean: 3.95 (High Extent)

Standard Deviation: 0.714 (Homogenous)

Ho_1: The level of digital literacy in Computation among Senior High School Students is not significant.

Table 3.1 shows the mean and standard deviation of each indicator, the data showed that the highest mean of 4.63 is "I can perform basic arithmetic operations (addition, subtraction,

multiplication, division) using digital tools," with a standard deviation of 0.623. In contrast, the lowest mean of 3.42 is "I can calculate using complex functions in digital tools," with a standard deviation of 0.762. This means that students are at a high extent in basic arithmetic operations than students in computing complex functions. The mean scores across all indicators reflect varying levels of digital literacy among senior high school students in terms of computation. The overall weighted mean is 3.95, suggesting a high extent of competence in using digital tools for computational tasks. This indicates that, on average, students are quite capable of performing mathematical operations using digital tools. The standard deviation is 0.714, which is relatively low, showing that the responses are homogeneous and consistent across the sample.

1.2 Word Processing

Table 3. 2

One Sample Results on the Level of Digital Literacy among Senior High School Students in terms of Word Processing

Indicators	Mean	Std. Deviation	t	Sig. (2-tailed)	Significance
I can create new documents using word processing software.	4.49 High Extent	.733 Homogenous	14.814	<.001	Significant
I can use spell check and grammar tools to ensure my documents are error-free.	4.38 High Extent	.735 Homogenous	13.157	<.001	Significant
I can insert and format mathematical equations in word processing software.	3.73 High Extent	.860 Homogenous	2.867	<.005	Significant
I can collaborate with others using word processing software.	4.06 High Extent	.813 Homogenous	7.526	<.001	Significant
I can insert images and other media into word-processed documents.	4.54 Very High Extent	.697 Homogenous	16.374	<.001	Significant

N= 120 **Test Value=**3.5 **df**=119

Overall Weighted Mean: 4.24 (High Extent)
Standard Deviation: 0.768 (Homogeneous)

Ho_2: The level of digital literacy in Word Processing among Senior High School Students is not significant.

Table 3.2 shows the mean and standard deviation of each indicator, The individual mean scores range from 3.73 (inserting and formatting mathematical equations) to 4.54 (inserting images and media). The highest-scoring item (mean = 4.54) reflects students' proficiency in enhancing documents with multimedia elements. In contrast, their ability to work with mathematical equations shows room for improvement with a mean of 3.73, still considered a high extent. The overall weighted mean for the level of digital literacy in word processing is 4.24, indicating that students generally demonstrate a high extent of competence in using word processing tools. This suggests that students are comfortable with most essential features of word processors. The standard deviation for the indicators is 0.768, indicating that responses are homogeneous, meaning students have relatively similar levels of word processing skills.

1.3 Presentation

Table 3. 3

One Sample Results on the Level of Digital Literacy among Senior High School Students in terms of Presentation

Indicators	Mean	Std. Deviation	t	Sig. (2-tailed)	Significance
I can create slides with text and visuals using presentation software.	4.50 Very High Extent	.733 Homogenous	14.937	<.001	Significant
I can insert mathematical symbols or equations using presentation software.	4.02 High Extent	.840 Homogenous	6.738	<.001	Significant
I can design templates to make the presentation visually appealing.	4.33 High Extent	.822 Homogenous	11.000	<.001	Significant
I can collaborate with others in creating and editing presentations	4.34 High Extent	.825 Homogenous	11.176	<.001	Significant
I can organize information clearly and understandably in presentations.	4.26 High Extent	.750 Homogenous	11.072	<.001	Significant

N= 120 **Test Value=**3.5 **df**=119

Overall Weighted Mean: 4.29 (High Extent)
Standard Deviation: 0.794 (Homogeneous)
Ho_3: The level of digital literacy in Presentation among Senior High School Students is not significant.

Table 3.3 shows the mean and standard deviation of each indicator, Among the indicators, the ability to create slides with text and visuals achieved the highest mean score (4.50), indicating a very high extent of competence in this fundamental task. Other indicators, such as designing templates and collaborating with others, also show strong proficiency, with means around 4.33 and 4.34. The lowest mean (4.02) pertains to inserting mathematical symbols or equations, suggesting that this is a slightly weaker skill area, although still within a high range. The results indicate that senior high school students possess a high extent of digital literacy in terms of presentation, with an overall weighted mean of 4.29. This suggests that students are generally proficient at creating and designing presentations. The standard deviation of 0.794 reflects homogeneity in the students' responses, indicating consistent levels of presentation-related skills across the sample.

2. Level of Performance of the Students in General Mathematics

Table 3. 4

Frequency, Percentage, and Mean Results on the Level of Performance of Students in General Mathematics

Grade Bracket	Frequency	Percentage	Description
90-100	52	43.3%	Outstanding
85-89	38	31.7%	Strongly Satisfactory
80-84	30	25%	Satisfactory
75-79	0	0%	Fairly Satisfactory
Total	**120**	**100**	

Mean= 88.58 (Strongly Satisfactory)

Table 3.4 shows the performance levels of students in General Mathematics based on their grades. A significant portion of students (43.3%) achieved outstanding performance, with grades ranging from 90-100. Additionally, 31.7% of students fell within the strongly satisfactory bracket (85-89), while 25% obtained satisfactory performance (80-84). Notably, no students scored in the fairly satisfactory range (75-79), indicating that all students performed above the minimum passing threshold. The mean score is 88.58, which falls within the "strongly satisfactory" range, reflecting an overall solid level of performance among the students in General Mathematics.

3. The Effect of Digital Literacy to the Performance of the Students in General Mathematics in terms of:

3.1 Computation

Table 3. 5

Regression Results on the Level of Digital Literacy among Senior High School Students in terms of Computation and its effect on performance in General Mathematics

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.423[a]	.179	.172	4.326

a. Predictors: (Constant), Computation

This table shows the effect of digital literacy in terms of computation. As shown in the table, an R value of 0.423, indicating a moderate positive correlation between digital literacy in computation and students' performance in General Mathematics. The R-squared value is 0.179, meaning that 17.9% of the variation in students' math performance can be explained by their digital literacy in computation. Although the explained variance is moderate, other factors

likely contribute to students' performance, as indicated by the remaining 82.1% of unexplained variance. The standard error of the estimate is 4.326, which reflects the typical deviation of observed values from the predicted values.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	480.849	1	480.849	25.694	<.001[b]
	Residual	2208.317	118	18.715		
	Total	2689.167	119			

a. Dependent Variable: Performance in General Mathematics

b. Predictors: (Constant), Computation

This table indicate that the regression model is statistically significant, with an F-value of 25.694 and a p-value less than 0.001. This shows that the relationship between digital literacy in computation and performance in General Mathematics is not due to chance. The significant F-test confirms that the model as a whole provides a good fit to the data, meaning that digital literacy in computation meaningfully influences math performance.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	72.596	3.179		22.838	<.001
	Computation	4.053	.800	.423	5.069	<.001

a. Dependent Variable: Performance in General Mathematics

Ho$_4$: Computation do not significantly affect the level of digital literacy among Senior High School Students.

This table shows that the constant is 72.596, meaning that even without the influence of computation skills, students are predicted to achieve an average score of around 72.60 in General Mathematics. The unstandardized coefficient for computation is 4.053, indicating that for every one-unit increase in students' digital literacy in computation, their math performance improves by approximately 4.05 points. The t-value (5.069) is statistically significant ($p < 0.001$), meaning the predictor variable (computation) significantly contributes to the model. Therefore, the null hypothesis (Ho4) that computation does not significantly affect students' digital literacy is rejected.

3.2 Word Processing

Table 3. 6

Regression Results on the Level of Digital Literacy among Senior High School Students in terms of Word Processing and its effect to the performance in General Mathematics

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.225[a]	.050	.042	4.652

a. **Predictors**: (Constant), Word Processing

This table indicates an R-value of 0.225, suggesting a weak positive correlation between digital literacy in word processing and students' performance in General Mathematics. The R-squared value of 0.050 reveals that only 5% of the variation in students' math performance can be explained by their Word Processing skills. This indicates that while word processing has some influence on math performance, the effect is limited. The standard error of the estimate is 4.652, suggesting that actual math performance scores deviate from predicted values by this amount on average.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	135.582	1	135.582	6.265	.014[b]
	Residual	2553.585	118	21.641		
	Total	2689.167	119			

a. **Dependent Variable**: Performance in General Mathematics

b**. Predictors**: (Constant), Word Processing

This table shows that the regression model is statistically significant, with an F-value of 6.265 and a p-value of 0.014. This indicates that the relationship between word processing skills and math performance is not due to random chance. Although the F-value is relatively modest, the significance level suggests that word processing literacy makes a small but meaningful contribution to students' math achievement.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	80.621	3.209		25.122	<.001
	Word Processing	1.878	.750	.225	2.503	.014

a. **Dependent Variable**: Performance in General Mathematics

Ho5: Word Processing do not significantly affect the level of digital literacy among Senior High School Students.

This table shows the coefficients of the variables. As shown in the table the constant is 80.621, meaning that students are expected to have a baseline performance score of 80.62 even without the influence of word processing skills. The unstandardized coefficient for word processing is 1.878, indicating that for every one-unit increase in students' word processing skills, their math performance improves by approximately 1.88 points. The t-value of 2.503 is statistically significant, with a p-value of 0.014 (below 0.05). Therefore, the null hypothesis (Ho5), which states that word processing does not significantly affect digital literacy, is rejected. This confirms that word processing literacy does have a small but significant positive effect on math performance.

3.3 Presentation

Table 3. 7

Regression Results on the Level of Digital Literacy among Senior High School Students in terms of Presentation and its effect to the performance in General Mathematics

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.415[a]	.172	.165	4.344

a. **Predictors:** (Constant), Presentation

This table indicates an R-value of 0.415, suggesting a moderate positive correlation between digital literacy in presentation skills and students' performance in General Mathematics. The R-squared value is 0.172, meaning that 17.2% of the variance in math performance can be explained by students' presentation literacy. This moderate effect suggests that while presentation skills are not the sole determinant of math performance, they play a meaningful role. The standard error of the estimate is 4.344, showing the average deviation of actual math scores from the predicted scores.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	462.615	1	462.615	24.517	<.001[b]
	Residual	2226.552	118	18.869		
	Total	2689.167	119			

a. Dependent Variable: Performance in General Mathematics

b. Predictors: (Constant), Presentation

This table shows that the regression model is statistically significant, with an F-value of 24.517 and a p-value of less than 0.001. These findings confirm that the relationship between presentation skills and math performance is not due to random variation. The significance of the F-test indicates that the model provides a meaningful explanation for the relationship, validating that students'

presentation literacy influences their performance in General Mathematics.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	75.235	2.725		27.610	<.001
	Presentation	3.113	.629	.415	4.951	<.001

a. Dependent Variable: Performance in General Mathematics

Ho_6: Presentations do not significantly affect the level of digital literacy among Senior High School Students.

This table shows the coefficients of the variables. As shown in the table the constant (intercept) is 75.235, indicating that students are predicted to achieve an average math score of 75.24, even without any contribution from presentation skills. The unstandardized coefficient for presentation is 3.113, meaning that for every one-unit increase in students' presentation literacy, their math performance improves by approximately 3.11 points. The t-value of 4.951 is statistically significant ($p < 0.001$), confirming that presentation skills have a significant positive effect on students' math performance. Thus, the null hypothesis (Ho6), which states that presentation skills do not significantly affect digital literacy, is rejected.

Discussion

Based on the findings of the study, the following conclusions were made:

H_O1: The level of digital literacy in Computation among Senior High School Students is not significant.

The level of digital literacy in computation among Senior High School Students is significant, therefore, the null hypothesis is rejected. Most indicators, confirming that students' digital literacy in these areas is significantly above moderate. The findings show that the performance of Senior High School Students is perfect as evidenced by the highest mean in basic arithmetic operation using digital tools but very poor or almost unable to use complex functions evidenced by the lowest. The result suggests that the students have some fundamental digital literacy knowledge but may need help with more advanced tasks or technology in more complex ways. Marci-Boehncke, G., & Vogel, T. (2018); Tohara, A. J. T. (2021). They may require further development and training to enhance their digital skills in complex function. Baterna, H.B., Mina, T.D.G., & Rogayan, D.V. Jr. (2020). Studies show that high school students generally have strong digital literacy, in basic tasks like performing simple mathematics tasks and internet browsing. However, more complex computational skills remain a challenge, with students often struggling with more advanced digital tools, particularly in functions beyond basic arithmetic. The student's ability to calculate using complex functions in digital tools can be attributed to insufficient exposure to advanced software or lack of formal training in computational tools. Reddy et al. (2020), Li, Y. & Ranieri, M. (2013), Lye, S. Y., & Koh, J. H. L. (2014).

H_O2: The level of digital literacy in Word Processing among Senior High School Students is not significant.

The level of digital literacy in terms of Word Processing among Senior High School Students is significant, therefore, reject the null hypothesis. This confirms that students' word processing skills are significantly higher than the moderate level. The findings show that Senior High School Students are already at a comfortable level to perform basic word processing functions, specifically on inserting images and media where the highest mean, but they struggle in other aspects such as formatting

mathematical equations which had the lowest mean. Senior High school students generally demonstrate proficiency in basic word-processing tasks, such as typing, formatting text, and inserting multimedia content. However, they often struggle with more complex functions like inserting symbols and formatting equations. The lower mean score indicates that students may be comfortable with general word processing but find it harder to handle specialized tasks. Students who frequently use word-processing software in academic contexts demonstrate higher levels of digital literacy, especially when incorporated into everyday learning activities. The overall mean score in the study indicates a high level of digital literacy, possibly due to students' familiarity with and frequent use of word processing tools in their schoolwork, although advanced functions like formatting mathematical equations remain less practiced. Ng, W. (2012), Claro, M. et al. (2018)

H_o3: The level of digital literacy in Presentation among Senior High School Students is not significant.

The level of digital literacy in Presentation among Senior High School Students is significant, Therefore, reject the null hypothesis. Confirming that the students' presentation skills are significantly above the moderate level. The findings shows that Senior High School Students are high extent in presentation making most especially when using text and visuals, demonstrated by the highest mean. Though, they had some difficulty when it came to using other aspects of the software that included inserting mathematical symbols or equations, that got the lowest mean. Secondary education students are generally proficient in creating basic presentations with text and visuals, with the highest score in creating slides with these elements. Students' competence with digital tools grows with exposure and regular use in educational contexts. Students frequently use presentation software for creative content delivery, reinforcing their skills in creating slides with text and visuals. However, tasks requiring more complex software features, like inserting mathematical symbols, are less practiced, leading to lower confidence and proficiency. Digital literacy in presentation creation is essential for effective communication in the digital age, and students are generally proficient in creating visually appealing presentations due to their understanding of conveying information clearly and engagingly through digital media. Ng, W. (2012), Claro, M. et al. (2012), Bawden, D (2008).

H_o4: Computation do not significantly affect the level of digital literacy among Senior High School Students.

Computation significantly affected the level of digital literacy among Senior High School Students, Therefore, reject the null hypothesis. The research shows that there is a moderate but positive relationship between students' digital literacy in computation and General mathematics scores, implies that a progressively enhancing digital literacy leads to an improvement in performance in mathematics. Thus, for the given students, computational literacy indicates overall that differences do exist in students' mathematics grades influenced by digital literacy in computations, which in return is a definition of a meaningful effect between students' mathematical performance and digital literacy in computation. In addition, an increase in the students' computational literacy results in an increase in their grades. The result implies that they have a basic understanding of digital tools and technologies. However, their skills might be limited, or they may need to be fully

proficient in using them Atoy, M.B. et al., (2020); Udeogalanya, V. (2022). Digital literacy, encompassing skills from basic tasks to complex problem-solving, is linked to academic performance, especially in mathematics and science. Ng, W. (2012) found that students with strong digital literacy are better equipped to understand and engage with mathematical content, as digital tools offer various ways to explore, visualize, and manipulate concepts.

H_O5: Word Processing do not significantly affect the level of digital literacy among Senior High School Students.

Word Processing significantly affected the level of digital literacy among Senior High School Students, therefore, reject the null hypothesis. This confirms that word processing literacy does have a small but significant positive effect on math performance, it reveals that as the word processing skills improve, the student's grades increase as well but to a limited extent compared to other significant factors. Digital literacy involves the use of digital tools and technologies for communication, collaboration, and problem-solving. It encompasses various skills, from word processing to data analysis and content creation. However, the impact of digital literacy on specific subjects like mathematics is less clear. A study found a low positive effect between word processing skills and performance in General Mathematics, suggesting a weaker connection with computational or problem-solving digital skills. Claro, M. et al. (2018), Ng, W. (2012).

H_O6: Presentation do not significantly affect the level of digital literacy among Senior High School Students.

Presentation significantly affected the level of digital literacy among Senior High School Students, therefore, reject the null hypothesis. This study reveals that the level of digital literacy in presentation skills has a moderate positive influence with statistically significant levels on the student's performance in General Mathematics. Therefore, it implies that the improvement in the presentation skills is proportional to the increase in students' grades. Digital literacy is the ability to use digital tools and technologies effectively for communication, problem-solving, and content creation. It is a set of competencies that enable individuals to function effectively in digital environments. In education, digital literacy is crucial for students' ability to process and present information, impacting their performance across subjects. A moderate positive effect was found between digital presentation skills and performance in General Mathematics. This suggests that students who are proficient in using presentation tools tend to perform better in mathematics as well. Digital literacy encompasses a wide range of skills, including the ability to create and present information using digital tools. Claro, M. et al. (2012), Bawden, D. (2008), Ng, W. (2012).

Recommendations

The study recommends that digital literacy skills can significantly improved students' performance in General Mathematics.
1. The findings in the level of digital literacy of the Senior High School students in terms of computation of more complex tasks, such as using complex functions in digital tools shows a moderate extent of ability, indicating some room for improvement. To address the gaps in digital literacy, particularly in advanced computational skills among senior high school students, it is recommended that educational institutions implement targeted training programs focusing on complex functions and

data analysis using digital tools. This could include workshops, online tutorials, and hands-on projects that emphasize real-world applications of advanced mathematics. Additionally, integrating these topics into the existing mathematics curriculum can help reinforce learning and provide students with continuous exposure to challenging tasks. By fostering a deeper understanding of these advanced skills, schools can better prepare students for higher education and technical careers, ultimately enhancing their overall digital literacy and mathematical competencies.

2. To effectively enhance the digital literacy of senior high school students and improve their performance in General Mathematics, it is recommended that the first program focus on maintaining the high standards of students who already demonstrate Strongly Satisfactory and Outstanding performance by providing advanced workshops on digital tools, data analysis, and collaborative project- based learning. This program should include opportunities for peer mentoring, allowing high-achieving students to support their classmates while reinforcing their own skills. For the second program aimed at students with Satisfactory performance, it is essential to implement foundational digital literacy training that emphasizes basic computational skills, word processing techniques, and collaborative learning strategies. By offering targeted support and resources for both high-performing and underperforming students, schools can foster an inclusive learning environment that promotes overall mathematical proficiency and digital competence across the board.

3. Future researchers should consider investigating the digital literacy and its effect on academic performance in General Mathematics among senior high school students by employing a mixed-methods approach that combines quantitative assessments with qualitative insights. This could include longitudinal studies that track students' progress over time as they engage with targeted digital literacy programs, particularly focusing on advanced computational tasks and technical formatting skills in computation and word processing. Additionally, researchers might explore the effectiveness of various teaching methods, such as project-based learning and peer mentoring, in enhancing both digital literacy and mathematical performance. It would also be beneficial to examine how different demographic factors, such as socioeconomic status and access to technology, influence students' digital literacy and overall academic success. By addressing these areas, future research can contribute to developing more effective educational strategies and interventions that are tailored to the needs of diverse student populations, ultimately leading to improved performance in General Mathematics.

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