

Effects of Digital Literacy on the Critical Thinking Skills and Academic Performance of Junior High School Students

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Abstract

This study determined the effects of digital literacy on the critical thinking skills and academic performance of junior high school students at Tomas Claudio Colleges during School Year 2025–2026. It employed a descriptive survey research design and documentary analysis. The respondents comprised 362 junior high school students, representing 50% of the total population of 721 students, who were selected through simple random sampling. A researcher-made test was used to determine the perceived extent of the effects of digital literacy on students' critical thinking skills in terms of analytical thinking, evaluative thinking, synthesizing skills, and self-regulation skills, while documentary analysis was employed to determine their academic performance based on their average grades. The findings revealed that most respondents were 12–13 and 14–15 years old, predominantly male, and mostly first- or second-born children. Majority belonged to families with more than two children and reported a monthly family income of ₱20,000 and above. Most parents were college graduates or college undergraduates and were employed or self-employed. The findings further showed that digital literacy had a high effect on the critical thinking skills of the respondents across all four dimensions. No significant differences were found in the perceived effects of digital literacy when respondents were grouped according to age, sex, and sibling position. However, significant differences were observed according to number of children in the family, monthly family income, parents' educational attainment, and parents' occupation. The respondents demonstrated a Very Satisfactory level of academic performance. Moreover, a significant relationship was found between the perceived effects of digital literacy on critical thinking skills and students' academic performance. The study concluded that digital literacy is associated with students' critical thinking skills and academic performance. It recommended strengthening digital literacy programs, integrating digital technology into instruction, implementing the proposed action plan, and conducting related studies using other variables.

Keywords: Digital Literacy, Critical Thinking Skills, Analytical Thinking, Evaluative Thinking, Synthesizing Skills, Self-Regulation, Academic Performance, Junior High School Students

1. Introduction

The rapid development of digital technologies has transformed the educational environment and the ways students access, process, evaluate, and communicate information. Digital platforms, search engines, online learning resources, productivity applications, and emerging artificial intelligence tools have become increasingly integrated into students' academic experiences. As access to digital information continues to expand, however, the ability to use technology effectively cannot be limited to basic operational skills. Students are expected to determine the credibility of information, compare sources, interpret digital content, solve problems, make informed judgments, and use digital resources responsibly. Thus, digital literacy has increasingly been recognized as an important component of contemporary education and as a competency that supports meaningful learning in technology-rich environments.

Digital literacy encompasses more than the ability to operate computers and digital devices. It involves the capacity to access, understand, evaluate, create, and communicate information using digital technologies. Ilomäki et al. (2023), in their systematic review of critical digital literacies at the school level, emphasized that digital literacy has become increasingly complex as technological practices evolve. The concept now involves not only technical proficiency but also the ability to engage critically with digital information and technologies. Similarly, Avinç and Doğan (2024) developed and validated a digital literacy scale for secondary school students, underscoring the importance of measuring digital literacy as a multidimensional competency rather than as simple familiarity with digital devices. These perspectives are particularly relevant to junior high school students, who are increasingly exposed to online information but may differ substantially in their ability to assess, interpret, and apply what they encounter in digital environments.

The relationship between digital literacy and critical thinking is especially significant in contemporary education. Digital environments provide students with an enormous volume of information, but access to information does not automatically result in sound reasoning. Students must be able to distinguish relevant from irrelevant information, identify assumptions, evaluate evidence, synthesize information from multiple sources, and reflect on the accuracy of their conclusions. These

processes correspond closely with the cognitive dimensions of critical thinking, including analysis, evaluation, synthesis, and self-regulation. Kurniawan et al. (2023), in a study involving Grade 8 students, examined critical thinking, science process skills, and digital literacy and demonstrated the close conceptual connection among these competencies. Their findings reinforce the view that digital literacy and higher-order thinking are interconnected competencies that should be developed together in school learning environments.

Recent studies further demonstrate that digital literacy may contribute to students' development of critical thinking. Mosquete and Libago (2025), for example, found significant positive relationships between digital literacy, information literacy, and critical thinking skills among teacher education students in the Philippines. Although their participants were higher education students, the findings provide relevant evidence that students who are more capable of navigating and evaluating digital and information resources may also demonstrate stronger critical thinking. Similarly, a 2025 study on the use of problem-based learning electronic worksheets among high school students reported the importance of developing digital literacy and critical thinking simultaneously, particularly as students encounter increasingly complex information and problem-solving demands. More recently, Antara et al. (2026) examined junior high school students and found that instructional approaches integrating problem-based learning and flipped classroom strategies can be used to address students' digital literacy and critical thinking needs. These studies suggest that digital literacy should not be viewed merely as a technical skill but as an enabling competency for higher-order cognitive processes.

The relevance of critical thinking in digital learning is also supported by recent reviews. Elera Castillo et al. (2023), in their systematic review of critical thinking in secondary education, highlighted the importance of developing students' capacity to reason, analyze information, and make informed judgments within formal educational settings. Andreucci-Annunziata et al. (2023) likewise emphasized the importance of intentional instructional strategies in developing critical thinking. These findings indicate that critical thinking is not necessarily produced by exposure to technology alone. Instead, students need to be guided in using digital resources in ways that require questioning, analysis, evaluation, synthesis, reflection, and independent judgment. Consequently, the educational value of digital literacy depends not only on students' ability to access technology but also on how effectively they use technology as a tool for thinking and learning.

Another important dimension of the present study is academic performance. Digital literacy may influence academic performance because digitally competent students can more efficiently locate learning resources, communicate with teachers and peers, participate in online learning activities, organize information, and complete academic tasks. Graciano and Benablo (2023), in a Philippine study of BSIT students, found significant relationships between digital literacy skills, online information-searching strategies, and academic performance. Although their participants were college students, the findings provide local evidence that digital competencies may be associated with academic outcomes. At the international level, a large-scale study of 8,916 K–12 students found that digital literacy significantly predicted academic achievement, with problem-solving ability serving as a significant mediator between digital literacy and academic performance (2024). This finding is particularly important because it suggests that the relationship between digital literacy and academic achievement may operate partly through students' ability to use digital resources to solve academic problems.

More recent evidence has strengthened the relationship between digital literacy and academic achievement. Li et al. (2025), through a meta-analysis involving 35 independent effect sizes, reported a significant medium positive relationship between digital literacy and students' academic achievement. Their findings provide broader evidence that digital literacy is associated with meaningful educational outcomes across studies. Likewise, Zakir et al. (2025) examined digital literacy and academic performance and identified digital informal learning, self-efficacy, and students' digital competence as important factors in explaining this relationship. Chen (2025) also reported a relationship between digital literacy and academic achievement, emphasizing the mediating roles of learning adaptation and online self-regulated learning. These findings suggest that the relationship between digital literacy and academic performance is multidimensional and may involve cognitive, behavioral, and self-regulatory processes.

The Philippine educational context makes the issue more significant. Filipino students increasingly encounter digital learning resources, social media platforms, online information, and technology-mediated academic tasks. However, digital access does not necessarily guarantee digital competence. Mangarin and Climaco (2024), in their review focusing on Filipino high school students, identified socioeconomic disparities, limited technological access, inadequate teacher training, educational policy limitations, and social and cultural factors as among the conditions associated with poor digital literacy. This observation is important because digital literacy may vary according to students' family and socioeconomic circumstances. Access to devices, internet connectivity, parental educational background, and parents' employment may influence the extent to which students are exposed to and supported in using digital technologies for educational purposes.

Recent Philippine research likewise demonstrates the continuing relevance of digital literacy to academic outcomes. A 2025 study involving students from State Universities and Colleges in the National Capital Region found that different dimensions of digital literacy were significantly associated with academic performance, with information literacy and

technical literacy emerging as particularly important predictors. A 2026 Philippine study further examined digital literacy and academic performance among college students, demonstrating the continuing scholarly interest in the relationship between students' digital competencies and educational achievement. Although these studies contribute to the Philippine literature, much of the existing evidence has concentrated on college or specialized students rather than junior high school learners.

Despite the growing body of research on digital literacy, critical thinking, and academic performance, several gaps remain. First, a substantial portion of recent research has examined college and university students, while comparatively fewer studies have focused specifically on junior high school students, who are at an important developmental stage for establishing higher-order thinking and responsible digital practices. Second, existing studies frequently treat digital literacy as a general competency or examine technical, information, communication, and content-creation skills. Fewer studies have specifically examined how digital literacy is perceived to affect the particular dimensions of critical thinking considered in the present study—analytical thinking, evaluative thinking, synthesizing skills, and self-regulation.

Third, although recent research has established relationships between digital literacy and academic achievement, many studies have investigated either digital literacy and critical thinking or digital literacy and academic performance separately. There remains a need for studies that examine the interrelationship of digital literacy, critical thinking, and academic performance within one junior high school population. The 2024 K–12 study demonstrated the predictive relationship between digital literacy and academic achievement through problem-solving ability, while the 2025 and 2026 studies provided evidence concerning digital literacy and critical thinking. Nevertheless, these studies do not fully address the specific combination of critical-thinking dimensions and academic performance examined in the present investigation.

Fourth, limited recent Philippine evidence has examined whether students' demographic and family-related characteristics are associated with the perceived effects of digital literacy on critical thinking. Variables such as age, sex, sibling position, number of children in the family, parents' educational attainment, parents' occupation, and monthly family income may represent differences in students' learning environments and access to digital resources. Examining these characteristics can provide school administrators and teachers with more contextualized evidence for designing digital literacy interventions.

Finally, there remains a contextual gap concerning private junior high school students in the local setting of Tomas Claudio Colleges in Morong, Rizal. While recent international and Philippine studies provide substantial evidence regarding digital literacy, the findings may not be directly generalizable to the specific demographic, socioeconomic, and educational context of the institution. There is therefore a need for school-based evidence that examines how digital literacy is perceived to influence the critical thinking skills of junior high school students and whether these perceived effects are associated with their actual academic performance.

It is within these gaps that the present study is situated. The study seeks to determine the effects of digital literacy on the critical thinking skills and academic performance of junior high school students at Tomas Claudio Colleges during School Year 2025–2026. Specifically, it examines digital literacy in relation to analytical thinking, evaluative thinking, synthesizing skills, and self-regulation and determines whether significant differences exist when students are grouped according to selected demographic and family characteristics. It also examines the relationship between the perceived effects of digital literacy on critical thinking skills and students' academic performance. By addressing these areas, the study seeks to provide empirical evidence that may assist teachers and school administrators in strengthening digital literacy initiatives, improving technology-supported instruction, and developing learning experiences that promote not only students' technological competence but also their ability to think critically, evaluate information, solve problems, regulate their learning, and achieve academically.

2. Material and methods

2.1 Research Design

The study employed a descriptive survey research design and documentary analysis to determine the perceived effects of digital literacy on the critical thinking skills and academic performance of junior high school students at Tomas Claudio Colleges during School Year 2025–2026. The descriptive survey design was used to gather data regarding students' perceived effects of digital literacy in terms of analytical thinking, evaluative thinking, synthesizing skills, and self-regulation, while documentary analysis was utilized to determine their academic performance based on their recorded average grades.

2.2 Locale of the Study

The study was conducted at Tomas Claudio Colleges in Morong, Rizal, a private educational institution that offers basic and higher education programs. The institution was selected as the locale of the study because it provides a relevant setting

for examining the relationship between digital literacy, critical thinking skills, and academic performance among junior high school students within a technology-supported educational environment.

2.3 Respondents of the Study

The respondents of the study were 362 junior high school students of Tomas Claudio Colleges during School Year 2025–2026. They represented 50% of the total junior high school student population of 721 and were described according to age, sex, sibling position, number of children in the family, parents' educational attainment, parents' occupation, and monthly family income.

2.4 Sample and Sampling Procedure

The study utilized simple random sampling in selecting 362 respondents from the total population of 721 junior high school students. The sample size represented approximately 50% of the total population, and the respondents were selected in a manner that provided each qualified student an equal opportunity to participate in the study.

2.5 Research Instrument

The primary research instrument was a researcher-made test/questionnaire designed to determine the perceived extent of the effects of digital literacy on the critical thinking skills of junior high school students in terms of analytical thinking, evaluative thinking, synthesizing skills, and self-regulation. The instrument was subjected to appropriate validation procedures to ensure that its items were relevant, clear, and aligned with the objectives and variables of the study.

2.6 Data Gathering Procedure

The researcher secured the necessary permission from the appropriate school authorities before conducting the study and coordinated with concerned personnel regarding the administration of the research instrument. After obtaining informed consent and explaining the purpose of the study to the respondents, the researcher administered the instrument, collected the completed responses, and retrieved the students' academic records through documentary analysis, with appropriate measures observed to maintain confidentiality and protect the respondents' information.

2.7 Data Analysis Techniques

The data gathered were organized, tabulated, analyzed, and interpreted using appropriate statistical techniques. Frequency and percentage were used to describe the respondents' demographic and family characteristics, while the weighted mean was used to determine the perceived extent of the effects of digital literacy on critical thinking skills; appropriate tests of significance were employed to determine differences across respondent groups, and correlation analysis was used to determine the significant relationship between the perceived effects of digital literacy on critical thinking skills and students' academic performance.

2.8 Ethical Considerations

The study adhered to established ethical principles throughout the research process. Prior to data collection, permission was obtained from the concerned authorities. All respondents were informed of the purpose, procedures, and voluntary nature of the study, and their informed consent was secured before participation. Confidentiality and anonymity of the respondents were strictly maintained by ensuring that no personal or company-identifiable information was disclosed in the presentation of the results. Participants were assured that they could withdraw from the study at any time without any consequences. The data gathered were used solely for academic and research purposes, stored securely, and handled in accordance with the agreed confidentiality and non-disclosure provisions to protect the privacy and integrity of both the respondents and the participating organizations.

3. Results and Discussion

3.1 Profile of the Respondents in Terms of the Selected Variables

As shown in the table, out of 362 respondents, in terms of age, most of them are 14-15 years old with 43.1 while 32.6% are 12-13 years old. There are more male respondents than females. Most of them are first and second born child with 24.9% and 22.1 % respectively. Nearly half of parents are college graduate with 46.4% for fathers and 45.6% for mothers. In terms of the number of children in the family, households with 2-3 children is in the highest rank with 38.4% followed by households with 4-5 children that has 31.5%, placing it at rank 2. Most parents are locally employed or self-employed having 46.4% and 42.8% employed for fathers and mothers respectively. Several of the parents are self-employed with 18.2% and 19.9% respectively. OFW and housewife/househusband roles are present but not dominant. In terms of monthly family income, over 70% of families are in the ₱20,000+ income bracket, suggesting relatively stable economic background with 37% for income bracket ₱30,000 and above and 33.2% for income bracket ₱20,00- ₱29,999. Only 8.8% are in the lowest bracket with below ₱20,00

Table 1

Profile of the Respondents in Terms of the Selected Variables

Age	f	%	R			
18 years old and above	20	5.5	4			
16-17 years old	68	18.8	3			
14-15 years old	156	43.1	1			
12-13 years old	118	32.6	2			
Total	362	100.0				
Sex	f	%	R			
Male	183	50.6	1			
Female	179	49.4	2			
Total	362	100.0				
Sibling Position						
1 st	90	24.9	1			
2 nd	80	22.1	2			
3 rd	74	20.4	3			
4 th	68	18.8	4			
5 th & above	50	13.8	5			
Total	362	100.0				
Number of Children in the Family						
1	91	25.1	3			
2-3	139	38.4	1			
4-5	114	31.5	2			
6 -7	18	5.0	4			
Total	362	100.0				
Educational Attainment	Father			Mother		
	F	%	R	f	%	R
College Graduate	168	46.4	1	165	45.6	1
College Undergraduate	74	20.4	2	70	19.3	2
High School Graduate	33	9.1	4	60	16.6	3
High School Undergraduate	55	15.2	3	38	10.5	4
Elementary Graduate	32	8.9	5	29	8.0	5
Total	362	100.0		362	100.0	
Parents' Occupation	Father			Mother		
	F	%	R	f	%	R
Employed (Local)	168	46.4	1	155	42.8	1
OFW	32	8.9	4	34	9.4	4
Self Employed	66	18.2	2	72	19.9	2
Entrepreneur	54	14.9	3	26	7.2	6
Housewife/ Househusband	25	6.9	5	44	12.1	3
Others	17	4.7	6	31	8.6	5
Total	362	100.0		362	100.0	
Monthly Family Income						
₱ 30.000 and above	134		37.0			1
₱ 20.00-₱ 29,999	120		33.2			2
₱ 10,000-₱ 19,999	76		21.0			3
below ₱ 20,000	32		8.8			4
Total	362		100.0			

3.2 Extent of Effects of Digital Literacy on the Critical Thinking Skills of Junior High School Students as Perceived by Themselves with Respect to the Different Aspects

Table 2 shows that the respondents perceived digital literacy to have a Much Extent effect on their critical thinking skills across all four aspects, as indicated by the composite weighted mean of 4.39. Among the dimensions, synthesizing skills ranked first with a weighted mean of 4.41, followed by evaluative skills at 4.40, self-regulation skills at 4.39, and analytical skills at 4.36, which ranked fourth but remained within the Much Extent interpretation. The findings indicate that students perceive digital literacy as consistently enhancing their ability to integrate information from various sources, evaluate information, regulate their learning, and analyze information using digital resources. The relatively higher rating for synthesizing skills suggests that students are particularly confident in using digital tools to combine and organize

information into meaningful understanding, while the slightly lower rating for analytical skills indicates an area that may benefit from further development. These findings support Rosales (2024), who emphasized that digital literacy involves the ability to access, evaluate, utilize, manage, analyze, create, and interact with digital resources, as well as to apply knowledge and strategies in performing and assessing digital activities. Thus, strengthening digital literacy through authentic and complex learning tasks may further enhance students' integrated critical thinking skills, particularly their analytical abilities.

Table 2

Extent of Effects of Digital Literacy on the Critical Thinking Skills of Junior High School Students as Perceived by Themselves with Respect to the Different Aspects

Aspects	Overall $\bar{W}\bar{X}$	Verbal Interpretation	Rank
Analytical Skills	4.36	Much Extent	4
Evaluative Skills	4.40	Much Extent	2
Synthesizing Skills	4.41	Much Extent	1
Self-Regulation Skills	4.39	Much Extent	3
Composite $\bar{W}\bar{X}$	4.39	Much Extent	

3.3 Significant Difference on the Extent of Effects of Digital Literacy on the Critical Thinking Skills of Junior High School Students as Perceived by Themselves with Respect to the Different Aspects in Terms of Their Profile

Table 3 shows that there is no significant difference in the perceived extent of effects of digital literacy on the critical thinking skills of junior high school students when grouped according to age, sex, and sibling position, as all obtained p-values are greater than .05, resulting in the acceptance of the null hypothesis. However, significant differences were found when respondents were grouped according to number of children in the family, fathers' and mothers' educational attainment, fathers' and mothers' occupation, and monthly family income, as all corresponding p-values are less than .05, leading to the rejection of the null hypothesis across analytical, evaluative, synthesizing, and self-regulation skills. These findings indicate that students' perceptions of the effects of digital literacy on critical thinking are influenced more by family and socioeconomic characteristics than by personal demographic characteristics. Differences in parental educational attainment, occupation, family size, and financial capacity may affect students' access to digital devices, internet connectivity, learning resources, parental guidance, and opportunities to engage meaningfully with technology. Thus, students from families with limited resources may require additional school-based support, structured guidance, and scaffolding to maximize digital tools for critical thinking. The findings are consistent with William (2025), who emphasized the significance of digital literacy in improving students' academic performance, engagement, motivation, and overall literacy development, particularly as technology continues to reshape the educational environment.

Table 3

Significant Difference on the Extent of Effects of Digital Literacy on the Critical Thinking Skills of Junior High School Students as Perceived by Themselves with Respect to the Different Aspects in Terms of Their Profile

Aspects/Variables	F-value	p-value	Ho	Verbal Interpretation
Age				
Analytical Skills	0.622	0.426	Accepted	Not Significant
Evaluative Skills	1.769	0.134	Accepted	Not Significant
Synthesizing Skills	0.725	0.554	Accepted	Not Significant
Self-Regulation Skills	0.432	0.098	Accepted	Not Significant
Sex				
Analytical Skills	1.048	0.321	Accepted	Not Significant
Evaluative Skills	0.478	0.437	Accepted	Not Significant
Synthesizing Skills	0.732	0.548	Accepted	Not Significant
Self-Regulation Skills	1.937	0.883	Accepted	Not Significant
Sibling Position				
Analytical Skills	0.812	0.452	Accepted	Not Significant
Evaluative Skills	0.132	0.987	Accepted	Not Significant
Synthesizing Skills	0.459	0.799	Accepted	Not Significant
Self-Regulation Skills	0.183	0.662	Accepted	Not Significant
Number of Children in the Family				
Analytical Skills	4.839	0.034	Rejected	Significant
Evaluative Skills	6.232	0.006	Rejected	Significant
Synthesizing Skills	5.583	0.003	Rejected	Significant
Self-Regulation Skills	9.936	0.001	Rejected	Significant

Fathers' Educational Attainment				
Analytical Skills	6.032	0.021	Rejected	Significant
Evaluative Skills	9.398	0.006	Rejected	Significant
Synthesizing Skills	7.419	0.043	Rejected	Significant
Self-Regulation Skills	9.992	0.038	Rejected	Significant
Mothers' Educational Attainment				
Analytical Skills	12.125	0.003	Rejected	Significant
Evaluative Skills	8.421	0.012	Rejected	Significant
Synthesizing Skills	6.921	0.011	Rejected	Significant
Self-Regulation Skills	8.921	0.021	Rejected	Significant
Fathers' Occupation				
Analytical Skills	10.832	0.002	Rejected	Significant
Evaluative Skills	8.622	0.031	Rejected	Significant
Synthesizing Skills	11.739	0.008	Rejected	Significant
Self-Regulation Skills	6.881	0.003	Rejected	Significant
Mothers' Occupation				
Analytical Skills	10.912	0.012	Rejected	Significant
Evaluative Skills	8.612	0.034	Rejected	Significant
Synthesizing Skills	11.772	0.021	Rejected	Significant
Self-Regulation Skills	8.986	0.006	Rejected	Significant
Monthly Family Income				
Analytical Skills	6.325	0.024	Rejected	Significant
Evaluative Skills	7.132	0.009	Rejected	Significant
Synthesizing Skills	4.887	0.002	Rejected	Significant
Self-Regulation Skills	8.926	0.006	Rejected	Significant

3.4 Level of Academic Performance of Junior High School Students as Revealed by Their Average Grades

Table 4 shows that the overall academic performance of the 362 junior high school students was Very Satisfactory, as indicated by the mean grade of 89.42 with a standard deviation of 2.901, suggesting relatively low variability and a generally consistent level of achievement among the respondents. Of the total respondents, 172 students (47.5%) obtained grades ranging from 85–89, interpreted as Very Satisfactory; 93 students (25.7%) attained grades of 90 and above, interpreted as Outstanding; while 97 students (26.8%) obtained grades ranging from 80–84, interpreted as Satisfactory. The highest recorded grade was 93, while the lowest was 83, resulting in a relatively narrow 10-point range and indicating that all respondents performed at a satisfactory level or higher. The findings suggest that the students demonstrate generally strong and stable academic performance, although opportunities remain to help more learners progress from the Very Satisfactory level to the Outstanding category through enrichment activities, higher-order learning tasks, and differentiated instruction. The relatively small variability in grades also suggests that instructional interventions may focus less on addressing severe academic deficiencies and more on enhancing the depth, complexity, and quality of students' learning. This finding is related to Martin (2022), who emphasized that digital literacy and the integration of digital media in education can contribute to students' learning achievement by enhancing self-efficacy, supporting cognitive processes, and developing critical thinking abilities, thereby enabling learners to become more mature and discerning in creating, communicating, evaluating, and consuming information.

Table 4
Level of Academic Performance of Junior High School Students as Revealed by Their Average Grades

Grades	Verbal Interpretation	F	%
90 and above	Outstanding	93	25.7
85 - 89	Very Satisfactory	172	47.5
80 - 84	Satisfactory	97	26.8
Total		362	100
Highest Grade		93	
Lowest Grade		83	
Mean		89.42–	Very Satisfactory
Standard Deviation		2.901	

3.5 Significant Relationship Between the Perceived Extent of Effects of Digital Literacy on the Critical Thinking Skills of Junior High School Students and Their Level of Academic Performance

Table 5 shows a significant positive relationship between the perceived extent of effects of digital literacy on the critical thinking skills of junior high school students and their academic performance across all four aspects, as all obtained p-values are less than .05, leading to the rejection of the null hypothesis. Self-regulation skills obtained the strongest relationship with academic performance, with an r-value of 0.812 and p-value of 0.034, followed by analytical skills with an r-value of 0.794 and p-value of 0.006, synthesizing skills with an r-value of 0.784 and p-value of 0.009, and evaluative skills with an r-value of 0.698 and p-value of 0.031. These results indicate that students who perceive greater improvements in their critical thinking through digital literacy tend to demonstrate higher academic performance. The findings further suggest that digital literacy may support academic success through multiple pathways, particularly by enabling students to analyze information, evaluate sources, synthesize ideas, and regulate their own learning. The strongest relationship observed in self-regulation highlights the importance of students' ability to set learning goals, monitor their progress, manage digital resources, and reflect on their learning experiences. Thus, strengthening digital literacy, particularly through activities that promote self-regulated learning, information synthesis, and higher-order thinking, may contribute to improved academic outcomes. The findings are consistent with Fronda 2023, who reported that digital literacy has a moderate positive effect on the academic performance of Filipino students, noting that digitally literate learners may benefit from increased engagement, personalized learning opportunities, and broader access to educational resources that support learning and academic achievement.

Table 5

Significant Relationship Between the Perceived Extent of Effects of Digital Literacy on the Critical Thinking Skills of Junior High School Students and Their Level of Academic Performance

Aspects	r-values	p-values	Ho	Verbal Interpretation
Analytical Skills	0.794	0.006	Rejected	Significant
Evaluative Skills	0.698	0.031	Rejected	Significant
Synthesizing Skills	0.784	0.009	Rejected	Significant
Self-Regulation Skills	0.812	0.034	Rejected	Significant

Conclusions & Recommendations

The study concluded that digital literacy has a much extent of effect on the critical thinking skills of junior high school students in terms of analytical skills, evaluative skills, synthesizing skills, and self-regulation skills, with synthesizing skills obtaining the highest rating. The findings further established that age, sex, and sibling position do not significantly differentiate the perceived effects of digital literacy on critical thinking skills, while number of children in the family, parents' educational attainment, parents' occupation, and monthly family income show significant differences. The students demonstrated an overall Very Satisfactory academic performance, with a mean grade of 89.42. Moreover, significant positive relationships were found between the perceived effects of digital literacy on all dimensions of critical thinking and students' academic performance, indicating that stronger perceived gains in critical thinking through digital literacy are associated with better academic outcomes. The study therefore concludes that digital literacy is an important educational competency that supports students' higher-order thinking and academic achievement, while family and socioeconomic conditions may influence students' digital learning experiences and opportunities.

Based on these findings, teachers are recommended to strengthen digital literacy integration through authentic, technology-supported learning activities that develop analytical, evaluative, synthesizing, and self-regulation skills. School administrators may provide appropriate digital resources, teacher training, and learning support programs, particularly for students who may have limited access to technology or guidance at home. Teachers may also provide differentiated and scaffolded activities that enable students to evaluate online information, synthesize information from multiple sources, solve complex problems, and monitor their own learning. Enrichment activities and higher-order tasks may likewise be provided to help students with Very Satisfactory performance progress toward the Outstanding level. The proposed action plan may be implemented to systematically strengthen digital literacy and critical thinking among junior high school students. Future researchers may conduct similar studies involving other schools, grade levels, and variables such as digital access, digital citizenship, information literacy, self-efficacy, and learning engagement to further establish the factors associated with students' digital literacy, critical thinking, and academic performance.

Compliance with ethical standards

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