ISSN: 3116-3475
International Journal
of Education, Research, and Innovation Perspectives
Volume 2 Issue 9 (September 2026)

Social Media Consumption, Mathematical Study Habits, and Computational Fluency of Grade 7 Students in the Digital Age: A Correlational Study

Ariel A. Ejusa
Cebu Technological University
ariel.ejusa@deped.gov.ph, arielejusa1988@gmail.com

Date Submitted:
March 10, 2026

Date Accepted:
August 17, 2026

Date Published:
September 04, 2026

DOI:
10.5281/zenodo.22291856

ABSTRACT

This study investigated social media consumption, mathematical study habits, and computational fluency among Grade 7 learners in a public national high school in Carcar City, Cebu, under the MATATAG Curriculum. It used a quantitative descriptive-correlational design with random sampling. The respondents were 151 Grade 7 learners drawn from five sections. Data were collected through a demographic profile sheet, a validated Social Media Consumption Questionnaire (SMCQ), a Mathematical Study Habits Inventory (MSHI), and a researcher-made Computational Fluency Test (CFT). Expert validation yielded a Content Validity Ratio above 0.80, while reliability coefficients ranged from Cronbach's $\alpha = 0.85$ to 0.92. Frequency, percentage, weighted mean, standard deviation, and Pearson product-moment correlation were used for analysis. Social media consumption was moderate ($M = 3.29$, $SD = 1.37$), and mathematical study habits were also moderate ($M = 2.87$, $SD = 1.21$). Computational fluency was low, with a mean score of 49.16 ($SD = 15.49$) and 71.52% of learners classified at the Beginning level. Social media consumption was not significantly related to mathematical study habits ($r = .045$, $p = .580$) or computational fluency ($r = .049$, $p = .550$), and mathematical study habits were not significantly related to computational fluency ($r = -.045$, $p = .583$). The findings indicate that the observed computational weakness cannot be explained by simple bivariate relationships among the measured variables alone. The study therefore proposes Instructional Intervention and Digital Habit Management Strategies centered on fluency practice, study-routine strengthening, responsible digital use, and systematic monitoring.

Keywords: *social media consumption, mathematical study habits, computational fluency, Grade 7 mathematics, MATATAG Curriculum, digital habit management*

INTRODUCTION

Mathematics education in the Philippines continues to face foundational numeracy challenges even as curricular reforms seek to strengthen essential competencies. Under the MATATAG Curriculum, Grade 7 mathematics emphasizes efficient and flexible use of number operations, fractions, ratios, and related concepts. The source thesis situates this concern against PISA 2022, where Philippine learners recorded a mathematics score of 355 compared with the OECD average of 472 and only a limited proportion reached baseline proficiency (Organisation for Economic Co-operation and Development [OECD], 2023). Computational fluency is therefore not merely a matter of speed; it involves accurate, efficient, and flexible computation grounded in number sense (AllLearners Network, 2024).

The digital environment adds another layer to this problem. Adolescents increasingly divide their time between academic tasks and social-media activity, and the source literature notes that extensive leisure-device use may coincide with reduced mathematics performance and less sustained study time (OECD, 2024). National and regional reports likewise describe high levels of youth connectivity and widespread device ownership, making social-media exposure a routine part of learners' academic context rather than an exceptional condition (Philippine Statistics Authority [PSA], 2025; Department of Education – Region VII, Cebu Division, 2025).

Existing studies cited in the thesis suggest several pathways through which digital engagement may affect learning. Social-media use may displace deliberate practice, fragment attention, or redirect time toward entertainment and social interaction (Twenge & Campbell, 2020; Katz et al., 1974). Screen exposure has also been examined in relation to academic performance among adolescents, although the direction and magnitude of effects vary across contexts and measures (Feng et al., 2025). In mathematics, digital resources can also support learning when they are used purposefully, indicating that device access itself is not necessarily detrimental (Joshi et al., 2025).

The local research gap identified by the thesis concerns the lack of Cebu-based evidence linking specific patterns of social-media consumption, mathematical study habits, and computational fluency among Grade 7 learners under MATATAG implementation. Prior Philippine work has more often focused on general mathematics performance or screen exposure than on computational fluency as a distinct outcome (Santos, 2023; RSIS International, 2024). This distinction matters because learners may obtain passing course grades while still showing difficulty with automaticity, flexible strategy use, and computational accuracy.

Accordingly, this study described the learners' demographic and digital profile, determined the levels of social-media consumption, mathematical study habits, and computational fluency, and tested the relationships among the three principal variables. The study also used the findings as the basis for Instructional Intervention and Digital Habit Management Strategies designed to strengthen computational practice, improve study routines, promote responsible digital use, and support monitoring within Grade 7 mathematics.

Literature Review

Digital engagement and social-media consumption

Social-media consumption among adolescents is shaped by both access and purpose. The Uses and Gratifications perspective incorporated in the thesis assumes that learners actively select media to satisfy needs such as entertainment, communication, information, or social connection. Katz et al. (1974) used this perspective to examine social-media use and academic performance, while the source thesis applies it to explain why Grade 7 learners may shift between educational and recreational uses of digital platforms. High device availability increases opportunities for both forms of engagement; the PSA (2025) similarly documents the growing role of information and communication technologies in Filipino households and individual activity.

The Displacement perspective in the thesis adds a time-allocation explanation: time spent on non-academic media may replace study, sleep, practice, or other activities that support learning. Twenge and Campbell (2020) are used in the source study to frame this trade-off, while OECD (2024) presents PISA-based evidence on digital-device use and school success. The source regional report also identifies digital habits as an issue in junior high school engagement in Cebu (Department of Education – Region VII, Cebu Division, 2025). These perspectives justify examining not only total social-media use, but also platform frequency, primary purpose, and study timing.

Digital activity should nevertheless be interpreted carefully. The thesis does not assume that every online activity is harmful, and its proposed intervention explicitly favors guided use rather than blanket prohibition. Joshi et al. (2025) emphasize the potential of digital resources in mathematics achievement, supporting a distinction between productive educational technology use and digital distraction. This distinction is also reflected in the study's instruments, which separately examine social-media behavior and educational use of mathematical digital tools.

Mathematical study habits and self-regulated practice

Mathematical study habits refer to the routines through which learners practice, review, analyze errors, and use learning tools. The source study operationalizes this construct through practice frequency, error analysis, and digital-tool use using the Mathematical Study Habits Inventory adapted from Magaña (2022). These dimensions capture both behavioral consistency and reflective learning: regular practice supports skill consolidation, while error analysis encourages learners to identify misconceptions and modify solution strategies.

Study habits are particularly relevant to computational fluency because fluency develops through repeated, meaningful engagement rather than isolated exposure. Practice routines can support automaticity, but effective practice also requires reflection on errors and selection of appropriate strategies. The MATATAG context strengthens the importance of such routines because foundational computation supports later work in algebra, geometry, and problem solving (Department of Education [DepEd], 2024).

The role of digital tools within study habits is therefore dual. Mathematical applications and tutorial videos may extend practice and feedback, whereas entertainment-oriented use during study periods may interrupt concentration. The study's separate measures of digital tool use and social-media consumption allow these forms of engagement to be distinguished rather than treated as a single category of screen time. This is important when interpreting any relationship between digital behavior and mathematics outcomes.

Computational fluency and cognitive processing

Computational fluency involves accuracy, efficiency, flexibility, and appropriate strategy use. The source study adopts a criterion-referenced CFT aligned with Grade 7 MATATAG competencies and assigns the greatest weight to accuracy, followed by strategy flexibility and speed. This operationalization is consistent with the broader view that fluency is not synonymous with rapid calculation alone (AllLearners Network, 2024).

Cognitive Load Theory provides one explanation for why fragmented attention could interfere with the development of fluency. Sweller (1988) argues that learning is constrained when working-memory resources are consumed by extraneous demands. Applied to the present study, repeated social-media interruptions could compete with the cognitive resources needed for multi-step computation, error monitoring, and strategy selection. The thesis therefore examines whether higher social-media consumption is associated with lower computational-fluency scores.

The empirical literature summarized in the thesis does not establish a uniform digital effect. OECD (2023, 2024) identifies broad relationships between digital distraction and mathematics performance, while Santos (2023) provides a Philippine context for screen time and mathematics achievement. Feng et al. (2025) similarly examine screen time and academic performance among adolescents. These studies provide a rationale for testing the relationship locally rather than presuming that international patterns will automatically reproduce in a specific Grade 7 cohort.

Motivation, autonomy, and the MATATAG learning context

The source theoretical framework also draws on Self-Determination Theory to explain how digital routines and study behavior may interact with learners' need for competence and autonomy. Deci and Ryan (2000) argue that motivation is strengthened when individuals experience autonomy, competence, and relatedness. In mathematics, learners who experience persistent difficulty may avoid practice, whereas learners who perceive progress may be more willing to engage in sustained problem solving.

This motivational perspective complements the study's behavioral measures. Social media can provide immediate feedback and social connection, while mathematics practice often requires delayed gratification and persistence. The study therefore examines study timing, practice frequency, and error-analysis behavior as observable indicators of how learners allocate effort within competing digital and academic demands.

The MATATAG Curriculum provides the instructional context for translating these findings into action. DepEd (2024) emphasizes streamlined foundational competencies, while RSIS International (2024) describes broader opportunities and challenges associated with digital transformation in mathematics education. The proposed intervention is consequently designed to combine computational-fluency support with responsible digital habit management rather than treating the two as separate school concerns. The theoretical–conceptual framework also situates the study within the constitutional right to quality education and the Enhanced Basic Education Act of 2013 (Constitution of the Republic of the Philippines, 1987; Republic Act No. 10533, 2013).

METHODS

Research Design

The study employed a quantitative descriptive-correlational research design to describe social-media consumption, mathematical study habits, and computational fluency and to determine the degree of association among these naturally occurring variables without manipulation or experimental intervention. This approach followed the correlational procedures described by Creswell and Creswell (2018).

Research Locale

The research was conducted during School Year 2025–2026 at a public national high school in Carcar City, Cebu, under the DepEd Division of Carcar City while the MATATAG Curriculum was being implemented. The school represented a public-school setting in which Grade 7 learners experienced both routine digital connectivity and the foundational mathematics demands of the revised curriculum.

Participants and Sampling Technique

The accessible population consisted of 234 Grade 7 learners across five sections: Burgundy, Dandelion, Fuchsia, Lavender, and Peach. Through random sampling, 151 learners were selected: 72 males and 79 females. The sample included 33 learners from Burgundy, 21 from Dandelion, 32 from Fuchsia, 32 from Lavender, and 33 from Peach. No learners from other grade levels were included.

Research Instrument

Four instruments were used. The Demographic Profile Sheet gathered age, gender, digital-device access, mathematics-homework completion, and final-grade information. The 25-item Social Media Consumption Questionnaire (SMCQ), adapted from Twenge and Campbell (2020), assessed daily usage hours, platform usage frequency, primary purposes, and study timing. The 30-item Mathematical Study Habits Inventory (MSHI), adapted from Magaña (2022), measured practice frequency, error analysis, and digital-tool use. The researcher-made 40-item Computational Fluency Test (CFT) was aligned with MATATAG Grade 7 competencies in numbers, fractions, and ratios and measured accuracy (70%), strategy flexibility (20%), and speed (10%). The CFT was administered without calculators within 20 minutes.

The instruments were subjected to expert validation and Table of Specifications alignment. The source thesis reports a Content Validity Ratio above 0.80 and reliability coefficients ranging from Cronbach's $\alpha = 0.85$ to 0.92. Instrument adaptation and permission practices were documented in the thesis with reference to Hathcock (2023).

Data Gathering Procedure

The researcher first obtained approval from the DepEd Division Office and school authorities and coordinated with Grade 7 mathematics teachers. Written parental or guardian consent and student assent were secured before participation. During scheduled classroom sessions, learners completed the demographic sheet, SMCQ, MSHI, and CFT under the researcher's supervision. The full administration lasted approximately 45 minutes, with the CFT following its separate 20-minute, no-calculator procedure. Completed instruments were checked for completeness, coded from R001 to R151, scored according to the study rubrics, and double-encoded in SPSS.

ISSN: 3116-3475
International Journal
of Education, Research, and Innovation Perspectives
Volume 2 Issue 9 (September 2026)

Data Analysis

Frequency counts and percentages described the respondents' profile. Weighted means and standard deviations summarized social-media consumption and mathematical study habits, while CFT scores were classified as Beginning (0–59), Developing (60–79), Proficient (80–94), or Advanced (95–100). Pearson product-moment correlation tested the relationships between social-media consumption and mathematical study habits, social-media consumption and computational fluency, and mathematical study habits and computational fluency. Statistical significance was evaluated at $\alpha = .05$.

Ethical Consideration

Participation was voluntary, with parental consent and learner assent obtained before data collection. Learners were informed that participation or non-participation would not affect grades or school standing. Each respondent was assigned an anonymous code, and data were reported only in aggregate. Physical and electronic records were secured, and privacy procedures were described as compliant with Republic Act No. 10173 and DepEd child-protection requirements (National Privacy Commission, 2012).

RESULTS AND DISCUSSION

Respondent profile and digital access

Table 1. *Selected profile characteristics of the respondents (N = 151).*

Profile variable	Category	f	%
Gender	Female	79	52.32
	Male	72	47.68
Age	13 years old	85	56.29
	12 years old	61	40.40
	14 years and above	5	3.31
Device access	Personal device	137	90.73
	Shared device	10	6.62
	No personal-device access	4	2.65
Math homework	1–2 times/week	79	52.32
	Daily	37	24.50
	3–4 times/week	35	23.18
Final math grade	80–84	58	38.41
	90–100	47	31.13
	85–89	29	19.21
	75–79	17	11.26

The sample was nearly balanced by gender and was concentrated at ages 12–13, which is typical of Grade 7. Digital access was extensive: 90.73% reported having a personal device. At the same time, mathematics practice outside school was not especially frequent, because 52.32% completed mathematics homework only one to two times per week. Final grades were distributed across the passing bands, with 38.41% in the 80–84 range and 31.13% in the 90–100 range. These profile results show that access to devices was widespread even though practice routines varied considerably.

The high level of personal-device access reflects the broader digital environment described in national ICT reports (PSA, 2025). Device access, however, should not be equated with either distraction or educational benefit. The source thesis therefore measured social-media consumption separately from mathematics-oriented digital tool use, allowing the analysis to distinguish access from actual behavior.

Level of social-media consumption

Table 2. *Summary of social-media consumption.*

Component	M	SD	Description
Daily usage hours	3.33	1.44	Moderate
Platform usage frequency	3.21	1.40	Moderate
Primary purposes	3.44	1.29	High
Study timing	3.16	1.36	Moderate
Overall	3.29	1.37	Moderate

Overall social-media consumption was moderate (M = 3.29, SD = 1.37). Among the components, primary purposes received the highest mean (M = 3.44), followed by daily usage hours (M = 3.33), platform usage frequency (M = 3.21), and study timing (M = 3.16). At the indicator level, chatting with friends was the strongest reported purpose (M = 4.38), social-media use at bedtime was high (M = 4.01), and late-night use before sleep was also high (M = 3.70). These patterns show that social-media engagement was embedded in social and daily routines rather than limited to school-related use.

The result is compatible with the Uses and Gratifications explanation that young users select platforms for social interaction and entertainment (Katz et al., 1974). It also makes the Displacement perspective relevant, because use before homework or late at night can compete with planned study time (Twenge & Campbell, 2020; OECD, 2024). Nevertheless, the moderate overall level cautions against characterizing the respondents as uniformly heavy social-media users.

Level of mathematical study habits

Table 3. *Summary of mathematical study habits.*

Component	M	SD	Description
Practice frequency	2.65	1.13	Moderate
Error analysis	3.18	1.21	Moderate
Digital tool use	2.79	1.28	Moderate
Overall	2.87	1.21	Moderate

Mathematical study habits were moderate overall (M = 2.87, SD = 1.21). Error analysis was the strongest component (M = 3.18), while digital tool use (M = 2.79) and practice frequency (M = 2.65) were lower. The highest specific indicator involved understanding why a problem was answered incorrectly (M = 3.67), whereas reviewing lessons within 24 hours (M = 2.25), logging error types (M = 2.42), and joining online mathematics study groups (M = 2.22) were among the weaker behaviors.

The pattern suggests that learners were more likely to recognize or reflect on mistakes than to maintain highly regular practice routines. This distinction is important because computational fluency develops through repeated practice as well as strategic reflection. The moderate digital-tool component also suggests that widespread device ownership did not automatically translate into frequent mathematics-oriented use. The findings reinforce the need for structured routines that convert access into deliberate learning activity (Magaña, 2022; DepEd, 2024).

Level of computational fluency

Table 4. *Computational fluency of the respondents.*

Level	Score range	f / value	% / interpretation
Advanced	95–100	0	0.00
Proficient	80–94	2	1.32
Developing	60–79	41	27.15
Beginning	0–59	108	71.52
Mean score	—	49.16	Beginning
Standard deviation	—	15.49	—

Computational fluency was the clearest area of concern. The mean CFT score was 49.16 (SD = 15.49), classified as Beginning. Of the 151 learners, 108 (71.52%) were at the Beginning level, 41 (27.15%) were Developing, only two (1.32%) were Proficient, and none reached the Advanced level. This distribution indicates substantial difficulty with the combination of accuracy, strategy flexibility, and speed assessed by the CFT.

The low level of fluency is consistent with the broader foundational mathematics challenges cited in the thesis (OECD, 2023) and underscores the MATATAG emphasis on foundational competencies (DepEd, 2024). Importantly, the result also shows why course grades alone are insufficient for diagnosing computational skill: many respondents had final mathematics grades above 80, yet the criterion-referenced fluency test still identified extensive Beginning-level performance. This supports direct, skill-specific assessment and targeted intervention.

Relationships among social-media consumption, study habits, and computational fluency

Table 5. *Pearson correlations among the principal study variables.*

Relationship	r	p	Strength/direction	Decision
Social media consumption – Mathematical study habits	.045	.580	Negligible positive	Not significant
Social media consumption – Computational fluency	.049	.550	Negligible positive	Not significant
Mathematical study habits – Computational fluency	−.045	.583	Negligible negative	Not significant

Note. All relationships were evaluated at $\alpha = .05$, two-tailed.

None of the three bivariate relationships reached statistical significance. Social-media consumption had a negligible positive relationship with mathematical study habits ($r = .045$, $p = .580$) and with computational fluency ($r = .049$, $p = .550$). Mathematical study habits had a negligible negative relationship with computational fluency ($r = -.045$, $p = .583$). The null hypotheses of no significant association were therefore not rejected.

These findings do not support a simple claim that greater social-media use directly produced weaker computational fluency in this sample. Nor did the measured study-habit score show a direct linear association with fluency. This result differs from broad patterns cited in the thesis linking digital distraction with academic performance (OECD, 2024; Feng et al., 2025), but the measures and local context are different. The absence of significant bivariate relationships suggests that computational fluency may depend on other factors not directly captured by the three composite measures, including prior mathematical foundations, instructional exposure, task difficulty, or the quality rather than frequency of practice. Because the study was correlational, no causal explanation is warranted.

The findings also highlight an important practical distinction: the lack of statistically significant correlations does not eliminate the instructional need evident in the descriptive data. A large majority of learners remained at the Beginning fluency level, practice frequency was only moderate, and digital activity was woven into daily routines. The proposed intervention is therefore justified primarily by the demonstrated skill and routine gaps, not by a claim that social media caused them.

Instructional Intervention and Digital Habit Management Strategies

Table 6. *Condensed Instructional Intervention and Digital Habit Management Strategies.*

Area of concern	Core strategies	Persons involved	Time frame
Low computational fluency	Diagnostic assessment; daily/weekly fluency drills; timed exercises; scaffolded mental computation	Mathematics teachers and Grade 7 learners	Weekly, beginning at start of school year
Irregular study habits	Self-monitoring checklists; guided error correction; short daily practice tasks	Teachers, learners, guidance counselor	Whole school year

Digital distraction	Parent/student screen-time orientation; classroom agreements; focus apps; educational math apps	Teachers, parents, learners, guidance counselor, IT coordinator	First-quarter orientation; quarterly reinforcement
Monitoring and evaluation	Pre/post-tests; monthly monitoring; quarterly stakeholder review	Mathematics teachers, school administrator, data officer	Pretest at start; posttest each grading period; quarterly review

The proposed plan directly addresses the descriptive weaknesses identified in the study. Fluency activities focus on accuracy, speed, and flexible strategy use; study-habit activities emphasize consistency and error correction; digital-management activities promote guided and responsible use rather than blanket prohibition; and monitoring procedures provide repeated evidence on learner progress. This approach is aligned with the study's conclusion that stronger instructional support is necessary even though the measured variables were not significantly correlated.

The digital component also reflects a balanced interpretation of technology. Because devices can support as well as distract from mathematics learning, the plan includes educational applications, family guidance, focus tools, and classroom agreements. This is more consistent with the mixed role of digital resources described in the source literature than a strategy based solely on restriction (Joshi et al., 2025; RSIS International, 2024).

CONCLUSION

The study concludes that Grade 7 learners in the examined public-school setting were highly connected digitally but demonstrated only moderate social-media consumption and moderate mathematical study habits. Their most serious academic concern was computational fluency: the mean CFT score fell within the Beginning level, and 71.52% of respondents were classified as Beginning. The correlational tests showed that social-media consumption was not significantly related to mathematical study habits or computational fluency and that mathematical study habits were not significantly related to computational fluency. Thus, the observed fluency weakness should not be attributed to a simple direct relationship with social-media use or the overall study-habit measure. The study's contribution lies in documenting the coexistence of widespread device access, moderate digital and study behaviors, and substantial computational-fluency difficulty under the MATATAG Curriculum. These findings support direct instructional remediation, more structured mathematical practice, responsible digital-habit development, and systematic monitoring of learner progress.

Recommendation

1. Mathematics teachers should implement regular diagnostic and fluency-building activities that develop accuracy, strategy flexibility, and speed through short, repeated, and scaffolded practice aligned with MATATAG competencies.
2. Learners should be guided to establish more consistent study routines, including brief daily practice, systematic review of incorrect solutions, and self-monitoring of mathematics study time.
3. Schools should implement digital habit management through student and parent orientations, classroom agreements, focus tools, and purposeful use of educational mathematics applications rather than relying on blanket social-media restrictions.
4. Parents and guardians should support focused mathematics study periods at home, establish reasonable screen-time boundaries, and coordinate with teachers when digital habits interfere with homework or sleep routines.
5. School administrators and mathematics departments should monitor intervention implementation using baseline and follow-up fluency assessments, monthly progress records, and periodic stakeholder reviews.
6. Future researchers should examine additional predictors of computational fluency, including prior achievement, instructional exposure, mathematics anxiety, sleep, socioeconomic factors, and specific patterns of productive

versus recreational device use. Longitudinal or intervention studies are also recommended because the present correlational design cannot establish causality.

References

AllLearners Network. (2024). *Computational fluency: Definition, components, and development*. https://www.alllearnersnetwork.com/blog/computational-fluency

Constitution of the Republic of the Philippines. (1987). *Article XIV, Section 1*.

Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications. https://bit.ly/3XhK8mP

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01

Department of Education. (2024). *DepEd Order No. 21, s. 2024: Policy guidelines on the implementation of the MATATAG Curriculum for School Year 2024–2025*. https://bit.ly/3YpR8vW

Department of Education – Region VII, Cebu Division. (2025). *Digital habits and academic engagement survey report: Junior high school learners*. DepEd Regional Office VII.

Feng, X., Ren, S., & Shi, P. (2025). The relationship and mechanism of screen time and academic performance among adolescents: An empirical study based on CEPS. *Frontiers in Public Health*, 13, 1533327. https://doi.org/10.3389/fpubh.2025.1533327

Hathcock, A. (2023). *Survey permissions in dissertations*. University of Houston–Clear Lake LibGuide. https://uhcl.libguides.com/dissertation/permissions

Joshi, D. R., Chapai, K. P. S., Upadhayaya, P. R., Adhikari, K. P., & Belbase, S. (2025). Effect of using digital resources on mathematics achievement: Results from PISA 2022. *Cogent Education*, 12(1), 2488161. https://doi.org/10.1080/2331186X.2025.2488161

Katz, E., Blumler, J. G., & Gurevitch, M. (1974). Utilization of mass communication by the individual. *In J. G. Blumler & E. Katz (Eds.), The uses of mass communications: Current perspectives on gratifications research* (pp. 19–32). SAGE Publications.

Magaña, R. P. (2022). *Mathematical study habits inventory: Development and validation for junior high school learners* [Master's thesis, Cebu Technological University]. CTU Institutional Repository. https://bit.ly/3XjPqRt

National Privacy Commission. (2012). *Republic Act No. 10173: Data Privacy Act of 2012*. https://bit.ly/3ZgJkLm

Neuman, S. B. (1991). *Literacy in the television age: The myth of the TV effect*. Ablex Publishing.

Organisation for Economic Co-operation and Development. (2023). *PISA 2022 results (Volume I): The state of learning and equity in education*. https://doi.org/10.1787/9789264678244-en

Organisation for Economic Co-operation and Development. (2024). *Students, digital devices and success: PISA 2022 insights*. https://doi.org/10.1787/9789264456783-en

Philippine Statistics Authority. (2025). *Information and communication technology usage among Filipino households and individuals: 2025 survey results*. https://psa.gov.ph/content/information-and-communication-technology-usage-filipino-households-and-individuals-2025

Republic Act No. 10533. (2013). *Enhanced Basic Education Act of 2013*.

RSIS International. (2024). Digital transformation and mathematics education in Southeast Asia: Challenges and opportunities. *International Journal of Research and Innovation in Social Science*, 8(6), 112–128. https://www.rsisinternational.org/journals/ijriss/Digital-Library/volume-8-issue-6/112-128.pdf

Santos, R. C. (2023). *Screen time and mathematics performance of Filipino junior high students* [Unpublished master's thesis]. University of San Carlos.

Sweller, J. (1988). Cognitive load during problem solving: Effects on learning. *Cognitive Science*, 12(2), 257–285. https://doi.org/10.1207/s15516709cog1202_4

Twenge, J. M., & Campbell, W. K. (2020). *Generations: The real differences between Gen Z, Millennials, Gen X, Boomers, and Silents*. Atria Books. https://bit.ly/3YpQfN2