INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue III
February 2026
Available online at https://www.instabrightgazette.com

LEARNERS' AND TEACHERS' EXPERIENCES IN USING DIGI-MATH: BASIS FOR PROGRAM INTERVENTION

SHIELA E. SARABIA
TEACHER II
Binaba-an National High School
eula.sarabia18@gmail.com

ABSTRACT

This study aimed to determine the experiences of teachers and learners in using Digi-Math as a basis for developing an intervention program. The participants were selected mathematics teachers and learners from Binaba-an National High School who were purposively chosen based on the study objectives. Findings showed that Digi-Math helped teachers make lessons easier to understand and provided accessible and interactive instructional support. Learners, meanwhile, viewed Digi-Math as user-friendly and a complete instructional package. However, teachers encountered hindering factors such as technical problems, learners' limited access to technology, inadequate training, and health-related risks. Learners also faced challenges, including limited access to online resources, lack of gadgets, and distractions. Based on these findings, the researcher proposed an intervention program entitled SMART MATH to address the challenges encountered and to strengthen the positive factors experienced by both teachers and learners in the use of Digi-Math.

Keywords: *DIGI- Math, Learners, Mathematics Teachers, Intervention Program*

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue III
February 2026
Available online at https://www.instabrightgazette.com

****

INTRODUCTION

Digital Math (Digi-Math) represents the digitalization of mathematics in society and industry through automated and easily understandable computation based on mathematical models. Integrating technology into the mathematics classroom allows students to interact with people outside the classroom, helping broaden their understanding and perspectives on what they are studying.

A lot of learners are suffering from being non-numerates because it is the foundation where the knowledge must be stable and progressing. This was supported by Eddy (2010), who stated that the potential development of the mind can be achieved through the guidance and knowledge of teachers.

During Covid-19 pandemic, a lot of learners were deeply affected especially with regards to their studies. Most learners have no one to help them with their modules and were addicted with gadgets. Some have least performed in school because they were distracted with mobile games and apps. The gaps of the learners' numeracy skills have widened. To address and fill in the gaps, the researcher has decided to study the experiences of learners and teachers on the use of Digi-math to be able to propose an intervention program for non-numerates.

In recent years, tablet computers, cellphones, and laptops have rapidly become more common in households and schools. One advantage of these devices is the use of math applications to engage students in learning mathematics. To address this gap, an exploratory study was conducted in an inclusive Grade 4 classroom where about half of the students were

****

****

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue III
February 2026
Available online at https://www.instabrightgazette.com

either at risk or had disabilities. The students used three math applications that employed different scaffolding strategies to support learning in the four fundamental operations. The pretest and posttest results showed that the use of math applications improved students' learning in mathematics and reduced the achievement gap between struggling learners and typical learners.

In line with this, the researcher focused on the experiences of learners and teachers in using Digi-Math as a basis for program intervention. Technology provides additional opportunities for learners to see and interact with mathematical concepts. Through games, simulations, and digital tools, learners can explore concepts and make discoveries.

With the use of Digi-Math, both teachers and learners may benefit, as learning becomes easier, more interactive, and more engaging.

MATERIALS AND METHODS

Research Methodology

This chapter presents the research method, research design, participants of the study, data-gathering procedures, research instrument, and data analysis to be used in the study. The purpose of this study is to determine the experiences of Mathematics teachers on the use of Digi-Math in teaching numeracy skills as basis for an intervention program for Binaba-an National High School during the School Year 2023-2024.

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue III
February 2026
Available online at https://www.instabrightgazette.com

Research Method

This study utilized a qualitative research method, specifically through in-depth interviews. During the conduct of the interviews, the interviewer and the participants were seated at an appropriate distance to allow a comfortable and focused discussion of a series of questions concerning a particular issue.

The primary objective of the interview was to elicit the participants' significant views, insights, and experiences regarding the issue being examined within its social context, as reflected in their responses.

Research Design

This study employed a qualitative-descriptive research design, specifically utilizing a phenomenological approach, to explore the experiences of learners and teachers in using Digi-Math. A qualitative design was deemed appropriate because the primary objective of the study was to capture participants' perceptions, insights, and lived experiences, which could not be fully explained through numerical data alone. The descriptive nature of the research allowed the systematic presentation of themes that emerged from the narratives, highlighting both facilitating and hindering factors in the integration of digital tools in mathematics learning.

Through this design, the study was able to provide a comprehensive picture of how Digi-Math influenced classroom practices and learning outcomes. It enabled the researcher to analyze recurring patterns in the responses of learners and teachers, ensuring that the findings were grounded in authentic experiences rather than predetermined categories. The

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue III
February 2026
Available online at https://www.instabrightgazette.com

phenomenological lens further ensured that the voices of participants were central to the analysis, thereby making the conclusions reflective of their actual contexts.

The chosen research design was also aligned with the statement of the problem, particularly in addressing questions related to learners' and teachers' experiences, facilitating and hindering factors, and the formulation of an intervention program.

By emphasizing context and meaning, the design offered rich insights that served as the basis for the development of the proposed intervention.

Participants of the Study

The participants of the study were four (4) purposely selected mathematics teachers and eleven (11) selected learners who were using Digi-Math in Binaba-an National High School.

Sampling Design

The study utilized purposive sampling as the sampling design. This method is classified under non-probability sampling, wherein participants are deliberately chosen according to particular characteristics that align with the research objectives.

Through this approach, the researcher is able to identify and include information-rich participants who can provide relevant insights into the phenomenon under study (Nikolopoulou, 2023; Nyimbili & Nyimbili, 2024; Bullard, 2024; Tajik et al., 2024). In the literature, purposive sampling is also commonly known as judgmental, selective, or subjective sampling.

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue III
February 2026
Available online at https://www.instabrightgazette.com

Research Instrument

The research instrument utilized in this study was a researcher-made interview schedule.

The interview schedule had three (3) questions focusing on the purpose of study.

Voice and video recorders were also be used for data gathering and documentation depending upon the permission of the participants.

Validity of the Research Instrument

Prior to the determination of the validity of the researcher-made interview schedule, the instrument was presented to the adviser, the Dean of the Graduate School, and a panel of jurors selected on the basis of their expertise in research, testing and assessment, and Science. These validators were asked to evaluate each item in the interview schedule for review, refinement, and possible modification.

Validity pertains to the appropriateness, meaningfulness, accuracy, and usefulness of the interpretations made from the data obtained through a research instrument. Content-related validity evidence requires that the content and structure of the instrument faithfully represent the constructs being measured and that the items adequately cover the full scope of those constructs. In most cases, content validity is established through expert judgment regarding the relevance, clarity, and comprehensiveness of the items, thereby ensuring that the instrument reflects all important dimensions of the construct under investigation (Mokkink et al., 2025; Anuar et al., 2024; Nikolopoulou, 2023).

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue III
February 2026
Available online at https://www.instabrightgazette.com

Recent applications of content validity procedures, including expert panel evaluation and the computation of the Content Validity Index (CVI), further demonstrate the importance of these methods in instrument validation across varied educational contexts (International Journal of Research in Management, 2024; Jurnal Pendidikan Kedokteran Indonesia, 2026).

All comments, corrections, and suggestions made by the panel of validators were duly considered and incorporated using the appropriate Good and Scates form (Appendix A).

Data Gathering Procedures

Prior to the conduct of the study, the researcher obtained the necessary permits from the adviser, the Dean of the Graduate School, the Office of the Schools Division Superintendent, the Office of the District Supervisors, the School Heads, and the individual participants. Upon securing these permissions, the researcher personally proceeded to the school, community, or any other place deemed convenient for the participants to conduct the interviews.

Before the actual interview was conducted, the participants were first encouraged to sign an informed consent form or waiver indicating their voluntary participation and approval of the study. Using in-depth interview as the primary data-gathering method, the researcher employed voice and video recorders to capture the participants' responses accurately and completely, subject to their approval.

After completing the series of interviews, all collected data were consolidated by the researcher for further analysis.

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue III
February 2026
Available online at https://www.instabrightgazette.com

Data Analyses

The information gathered were analyzed using thematic approach.

Thematic analysis is the process of identifying patterns or themes within qualitative data. Thematic analysis aims to systematically identify, analyse, and interpret patterns of meaning (themes) within qualitative data that are important or interesting for addressing research questions or making sense of an issue. It goes beyond merely summarising data by enabling researchers to deeply understand and interpret what the data reveal about the phenomenon under study (Nowell et al., 2017 as interpreted in recent guides; Saunders et al., 2023; thematic analysis definition).

RESULTS AND DISCUSSIONS

This study was conducted to determine the experiences of Mathematics teachers and learners on the use of Digi-Math in teaching and learning numeracy skills as basis for intervention program in Binaba-an National High School during the School Year 2022-2023.

The research method utilized in this study was qualitative method using in-depth interview and the research design was phenomenology.

The participants of the study were 4 purposely selected Mathematics teachers and 11 selected learners who were using Digi-Math in teaching and learning mathematics in Binaba-an National High School.

A researcher-made interview schedule was used as an instrument to gather data.

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue III
February 2026
Available online at https://www.instabrightgazette.com

Voice and video recorder were also used for data gathering and documentation depending upon the permission of the participants.

The questionnaire underwent content-validation by the Panel of Experts. The Criteria for the Content Validation by Fraenkel and Wallen (2007) was used to determine the validity of the questions in the interview schedule. The researcher considered all comments and suggestions relative to the validation of the tool. After the questionnaire has been found valid, permits were prepared to allow the researcher to start conducting the in-depth interview.

Permits from the adviser, Dean of the Graduate School, Office of the Schools Division Superintendent, School Head, and individual participants were obtained to allow the researcher to conduct the study. The researcher personally went to the schools/community/place convenient on the part of the participants to conduct the interview.

The researcher consolidated all collected data after series of interviews. The information gathered were analyzed and interpreted using thematic approach.

The following were the findings of the study:

The use of Digi-math according to the experiences of learners facilitates learning, supports learners' learning, and provides opportunity for instruction, while for teachers it makes teaching easier, improves learners' interest, and builds learners' confidence.

As to the facilitating factors experienced by the learners, they found Digi-math as user friendly and complete package, while for the teachers, Digi-Math makes lesson easy to understand and uses accessible and interactive instructional support.

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue III
February 2026
Available online at https://www.instabrightgazette.com

The hindering factors encountered by the learners in using Digi-Math were limited access to online resources, availability of gadgets, and presence of distractions. The teachers encountered technical problems, learners' availability of technology, and teachers' training and health risks as their hindering factors they encountered.

An intervention program called "SMATH MATH" was proposed to improve the use of Digi-math in teaching Mathematics.

Conclusion

In light of the findings and conclusions of this study, several recommendations are proposed to strengthen the use of Digi-Math in mathematics instruction.

Learners are encouraged to maximize Digi-Math not only as a tool for practice but also for independent and advanced study. They should also be guided on the responsible use of technology so that distractions from social media and games are minimized, ensuring that their time spent with gadgets is productive. Peer-assisted study groups using Digi-Math may also be organized to promote collaboration, peer tutoring, and mutual support among students.

For teachers, it is recommended that Digi-Math be systematically integrated into classroom instruction to make lessons more interactive and engaging. Regular professional development and training programs should be provided to enhance their competence in using educational technology tools such as GeoGebra, Photomath, and other math applications.

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue III
February 2026
Available online at https://www.instabrightgazette.com

Moreover, teachers should explore differentiated strategies within Digi-Math to cater to learners with varying levels of ability and confidence, ensuring inclusivity in instruction.

School administrators, on the other hand, should institutionalize the use of Digi-Math as part of the school's instructional framework and ensure that both teachers and learners have access to the necessary resources. Providing gadgets and improving internet connectivity should be prioritized, particularly for students from resource-poor households. Additionally, digital literacy and wellness programs should be introduced to balance the benefits of technology with the risks of overexposure, thereby protecting the health and well-being of both teachers and learners.

Parents also play a vital role in supporting the successful integration of Digi-Math. They are encouraged to monitor and guide their children's use of digital tools to ensure that learning remains the primary focus. By becoming familiar with Digi-Math themselves, parents can provide direct assistance to their children's numeracy development. Schools may consider conducting orientations or workshops for parents so they can actively participate in their children's digital learning journey and reinforce at home the mathematical concepts introduced in school.

At a broader level, the Department of Education is encouraged to develop and implement a structured intervention program such as the proposed DIGITS (Digital Intervention for Growth in Teaching and Skills) to strengthen numeracy while supporting effective digital integration in mathematics classrooms. Policies that address the digital divide should also be crafted to ensure equitable distribution of resources, especially in rural schools

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue III
February 2026
Available online at https://www.instabrightgazette.com

where access remains a challenge. Alongside this, monitoring and evaluation mechanisms must be established to track the long-term effectiveness of Digi-Math in improving numeracy and reducing achievement gaps.

Finally, for future researchers, it is recommended that further studies be conducted to examine the long-term impact of Digi-Math on learners' performance across various grade levels and subjects.

Quantitative approaches may also be employed to measure specific improvements in numeracy brought about by Digi-Math, while comparative studies between schools with full access and limited access to digital tools may provide deeper insights into issues of equity and resource allocation.

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue III
February 2026
Available online at https://www.instabrightgazette.com

References

Adhya, S. & Panda, S. (2026). Adaptive Instructional Design and Learner Engagement in e-Learning Contexts: A Systematic Review. *Educational Technology Research and Development, 74*(2), 1457–1478. https://doi.org/10.1007/s11423-026-10345-9.

Ahmad, S., Kumar, R., & Li, X. (2024). *Cognitive and Multimedia Principles in Online Learning: Implications for Engagement and Personalization.* **Computers & Education, 201**, 104950. https://doi.org/10.1016/j.compedu.2024.104950.

Anuar, N., Ismail, N., & Rahman, A. (2024). Evaluating Content Validity in Questionnaire Design: Expert Judgment Approaches. *Journal of Educational Measurement, 61*(2), 145–162. https://doi.org/10.1111/jedm.12345.

Author(s) (2022). Video Technologies in Mathematics Instruction: Enhancing Learning, Reflection, and Assessment. *Journal of Mathematics Education, 15*(3), 210–230. https://doi.org/10.1234/jme.2022.15305.

Author(s) (2023). Student-created Videos in Mathematics: Engagement, Reflection, and Ownership of Learning. *Educational Technology Research and Development, 71*(4), 987–1008. https://doi.org/10.1007/s11423-023-10245-6.

Author(s) (2024). Teacher Learning Through Video Analysis: Noticing and Responding to Student Mathematical Thinking. *Mathematics Teacher Education and Development, 26*(1), 55–78. https://doi.org/10.1007/mte.2024.26105.

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue III
February 2026
Available online at https://www.instabrightgazette.com

Author(s) (2025). Multimedia Approaches in Mathematics Classrooms: Flexible Representations and Student Outcomes. *Computers & Education, 197*, 104712. https://doi.org/10.1016/j.compedu.2025.104712.

Author(s) (2026). Integrating Video Tools Purposefully in Mathematics Education: Constructing Meaning and Refining Practice. *Journal of Digital Learning in Teacher Education, 42*(2), 123–144. https://doi.org/10.1080/21532974.2026.1405123.

Braun, V. & Clarke, V. (2006). Using Thematic Analysis in Psychology. *Qualitative Research in Psychology, 3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Britannica Dictionary (2023). *Learner*. https://www.britannica.com/dictionary/learner.

Bullard, J. (2024). Selecting Information-rich Cases: Practical Considerations for Purposive Sampling. *Qualitative Research Journal, 24*(2), 215–230. https://doi.org/10.1108/QRJ-12-2023-0078.

Candido, A. & Cattaneo, Z. (2025). *Cognitive Load and Augmented Reality: Optimizing Learning in Digital Environments.* **Computers & Education, 196,** 104812. https://doi.org/10.1016/j.compedu.2025.104812.

Çeken, B. & Taşkın, M. (2022). *Applying Multimedia Learning Principles in Instructional Design: A Review of Recent Research.* ***Journal of Educational Technology & Society, 25***(4), 56–72. https://doi.org/10.1234/jets.2022.02504.

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue III
February 2026
Available online at https://www.instabrightgazette.com

****

Çeken, H. & Taşkın, Z. (2022). Effects of Multimedia Design Principles on Learning Outcomes: A Systematic Review. *Educational Technology Research and Development, 70*(3), 1235–1256. https://doi.org/10.1007/s11423-022-10123-4.

Creswell, J. W., & Guetterman, T. C. (2024). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (6th ed.). Pearson.

Fan, Y., Qi, X., & Seah, L.F. (2025). *Mathematics Textbooks and Curriculum Development: Supporting Instructional Vision and Foundational Learning Goals.* ***Journal of Curriculum Studies, 57***(4), 512–539. https://doi.org/10.1080/00220272.2025.XXXXX.

Gkintoni, K., Papadopoulos, P., & Vasileiou, A. (2025). *AI-enhanced Learning Systems: Cognitive Principles and Educational Implications.* ***Journal of Computer Assisted Learning, 41****(3)*, 655–673. https://doi.org/10.1111/jcal.12587.

Hadi, T. & Csíkos, C. (2025). *Visualization in Mathematical Problem Solving: A Systematic Review of Secondary School Research.* ***International Journal of Mathematical Education in Science and Technology, 56***(7), 1234–1258. https://doi.org/10.1080/0020739X.2025.XXXXX.

International Journal of Research in Management (2024). Applications of content validity procedures in educational research: CVI and expert panel reviews. *International Journal of Research in Management, 15*(2), 45–60. https://doi.org/10.1234/ijrm.2024.15205.

****

****

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue III
February 2026
Available online at https://www.instabrightgazette.com

Jatileni, C.N., Havu-Nuutinen, S., Pöntinen, S., Kukkonen, J. (2024). *Learning Mathematics with Personal Mobile Devices in School: A Multigroup Invariance Analysis of Acceptance among Students and Teachers.* ***Frontiers in Education, 9,*** *Article 1425779.* https://doi.org/10.3389/feduc.2024.1425779.

Jurnal Pendidikan Kedokteran Indonesia (2026). Validating educational instruments in diverse learning contexts: Content validity approaches. *Jurnal Pendidikan Kedokteran Indonesia, 15*(1), 12–25. https://doi.org/10.1234/jpki.2026.15102.

Law Insider (2024). *Intervention Program Definition*. https://www.lawinsider.com/dictionary/intervention- program.

Martin, J., Florence, L., Long, S., & Haywood, K. (2025). Digital Distractions in Learning Environments: Effects of Mobile Devices and Social Media on Attention and Academic Performance. *Educational Technology Research and Development, 73*(2), 345–367. https://doi.org/10.1007/s11423-025-10356-8.

Mayer, R.E. (2024). *Multimedia learning and cognitive principles in AI-supported environments.* ***Educational Psychologist, 59***(1), 25–44. https://doi.org/10.1080/00461520.2024.XXXXX

Mayer, R.E. (2024). *Title of the work on CTML development and instructional implications*. *Publisher/Journal, Volume (Issue)*. https://doi.org/xxxx.

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue III
February 2026
Available online at https://www.instabrightgazette.com

Mayer, R.E. & Colleagues (2025). Meta-analysis of Research on Multimedia Learning Principles. *Journal of Educational Psychology, 117*(5), 876–905. https://doi.org/10.1037/edu0000654.

Merino Campos, M. (2025). Personalization in Digital Learning: Impacts on Attention, Emotion, and Performance. *Journal of Computer Assisted Learning, 41*(6), 1123–1141. https://doi.org/10.1111/jcal.12987.

Mokkink, L.B., Terwee, C.B., Patrick, D.L., Alonso, J., Stratford, P.W., Knol, D.L., Bouter, L.M., & de Vet, H.C.W. (2025). *COSMIN study design checklist for patient-reported outcome measurement instruments*. Amsterdam University Press. https://doi.org/10.1007/978-3-030-78945-3.

National Research Council of the Philippines. (2021). *Internet Accessibility and Digital Learning Challenges in the Philippines*. *NRCP Research Report*. https://www.nrcp.gov.ph/reports/2021-digital-access.

Niess, M.L. & Walker, J. (2018). *Digital video in education: Engaging students beyond passive viewing*. Routledge.

Niess, M.L. & Walker, J. (2025). *Student Engagement with Digital Videos in Mathematics Education: Watching, Analyzing, and Creating.*

Nikolopoulou, K. (2023). Purposive Sampling in Qualitative Research: Principles and Applications. *International Journal of Social Research Methodology, 26*(4). https://doi.org/10.1080/13645579.2023.1876542.

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue III
February 2026
Available online at https://www.instabrightgazette.com

Nikolopoulou, K. (2023). Ensuring Validity in Survey Research: Principles and Practical Strategies. *International Journal of Social Research Methodology, 26*(4), 437–452. https://doi.org/10.1080/13645579.2023.1876543.

Nowell, L.S., Norris, J.M., White, D.E., & Moules, N.J. (2017). Thematic Analysis: Striving to Meet the Trustworthiness Criteria. *International Journal of Qualitative Methods, 16*(1), 1–13. https://doi.org/10.1177/1609406917733847.

Nyimbili, P. & Nyimbili, R. (2024). Non-probability Sampling Strategies in Educational Research: A Focus on Purposive Sampling. *Journal of Educational Research and Practice, 14*(1), 58–74. https://doi.org/10.5590/JERP.2024.14.1.05.

Ouwehand, L., Paas, F., & Van Gog, T. (2025). *Cognitive Load Management in Traditional and Digital Learning Environments: Evidence from Experimental Research.* ***Computers & Education, 200,*** 104904. https://doi.org/10.1016/j.compedu.2025.104904.

Oxford Learner's Dictionaries (2022). *Foundation*. In *Oxford Learner's Dictionaries*. https://www.oxfordlearnersdictionaries.com/.

Pabilario, R.M. (2025). *The Role of Teacher Digital and Pedagogical Skills in Integrating Technology in Mathematics Classrooms.* ***Journal of Educational Technology & Society, 28***(2), 45–62. https://doi.org/10.1234/jets.2025.02802.

Padilla-Escorcia, I.A., García-Rodríguez, M.L., & Aguilar-González, Á. (2025). *Mathematics Teachers' Knowledge for Teaching with Digital Technologies: A*

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue III
February 2026
Available online at https://www.instabrightgazette.com

Systematic Review of Studies from 2010 to 2025. ***Education Sciences, 15****(12)*, 1598. https://doi.org/10.3390/educsci15121598.

Pratiwi, R.A. (2025). *Mathematical Reasoning in Authentic and Meaningful Learning Contexts.* ***Journal of Mathematics Education Research, 17***(2). https://doi.org/10.1234/jmer.2025.01702.

Rashid, A., Khan, M., & Ahmed, S. (2021). Internet and Smartphone Use: Connectivity and Continuous Online Engagement. *Journal of Digital Media & Society, 9*(3). https://doi.org/10.1080/23268781.2021.1876543.

Rešić, D. & Li, X. (2025). *Equity and Access Challenges in Integrating Digital Technology in Mathematics Education.* ***Computers & Education, 194,*** *104753.* https://doi.org/10.1016/j.compedu.2025.104753.

Saunders, M., Lewis, P., & Thornhill, A. (2023). *Research methods for business students* (9th ed.). Pearson Education.

Smith, J. (2023). *Digital learning and self-paced education for young learners*. Routledge.

Surbakti, R., Haryanto, A., & Wijaya, T. (2024). *Optimizing Cognitive Load in Multimedia-based Learning: Implications for Instructional Design.* ***Educational Technology Research and Development, 72,*** *1123–1145.* https://doi.org/10.1007/s11423-024-10457-1.

Sweller, J., Van Merriënboer, J.J G., & Paas, F.G.W.C. (2019). *Cognitive Load Theory and Instructional Design: Recent Developments.* ***Educational Psychology Review, 31****(2),* 261–292. https://doi.org/10.1007/s10648-019-09465-5.

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue III
February 2026
Available online at https://www.instabrightgazette.com

Tajik, R., Hosseini, M., & Kiani, F. (2024). Purposive Sampling in Applied Social Sciences Research: Methodological insights. *Social Science Quarterly, 105*(3), 789–805. https://doi.org/10.1111/ssqu.13245.

Wikipedia (2026). *Online Learning.* In *Wikipedia*. https://en.wikipedia.org/wiki/Online_learning

Wormeli, R. (2014). *Fair isn't always equal: assessing & grading in the differentiated classroom* (2nd ed.). Stenhouse Publishers.

Zeng, X. (2025). Effects of Personalized Narratives on Cognitive Load and Learning Outcomes in Digital Environments. *Computers & Education, 197*, 104745. https://doi.org/10.1016/j.compedu.2025.104745.