

E-Learning Platforms to Support Grade 7 Agri-Fishery Arts Instruction at Sto. Niño National High School, SDO Batangas City

Joan F. Ricalde ¹, Rodrigo S. Castillo, EdD ¹

1 – Golden Gate Colleges Inc; Sto. Niño National High School

joan.florendo@deped.gov.ph / 0009-0000-8215-2355

Publication Date: June 30, 2026

DOI: 10.5281/zenodo.22197857

Abstract

E-learning platforms was quickly becoming a popular and effective way of learning because it was accessible to learners. A lot of learners were using tools and technology for their education. As technology continues to change at a rapid pace, it enabled students to access more multimedia content, better networking capabilities, and access to other digital tools that can be used for individualized learning opportunities.

The purpose of this action research was to integrate the use of E-learning platform for facilitating the delivery of Agriculture and Fishery Arts instruction for Grade 7 students at Sto. Niño National High School, SDO Batangas City, during the 2nd Quarter of the School Year 2025–2026. More specifically, this study investigated the use of YouTube, Canva, and Educaplay as E-learning platforms and how these platforms positively or negatively impact student learning in Agriculture and Fishery Arts. This assessed the learning content and instructional activities offered by these platforms and the effectiveness of these platforms in aiding student learning. Finally, the study also included the challenges that students experienced with the use of these platforms and recommended an action plan based on the findings.

A descriptive research method was used to measure the effectiveness of E-learning platforms as instructional aids for the delivery of the Agriculture and Fishery Arts curriculum for Grade 7 students at Sto. Niño National High School. Data was collected from thirty-five students who participated in this study by completing a validated survey questionnaire. Data from the survey was analyzed according to the Department of Education rating scale and with the use of statistical tools. The analyzed data showed the barriers to students success with the E-learning platforms, the relationship that the platforms have with learning, and finally, the platforms' overall ability to support student learning.

Based on the findings, it was concluded that E-learning platforms such as YouTube, Canva, and Educaplay significantly enhanced the teaching and learning process, as reflected by a composite mean of 3.45 interpreted as high influence. These platforms provided dynamic visuals and meaningful hands-on experiences that improved students' understanding and participation, while also promoting independent learning, collaboration, and active engagement. However,



challenges such as unreliable internet access remained major barriers to effective participation in online learning. In light of these, it was recommended that teachers integrate e-learning platforms into daily lessons, design interactive and skill-based digital activities, and maximize these tools to address diverse learning needs, while schools ensure consistent access to digital resources and stable internet connectivity to support effective implementation.

Keywords: *E-learning Platforms, Digital Learning, Technology Integration, Multimedia Content, Individualized Learning, Student Engagement*

1. Introduction

Agri-Fishery Arts, a component of Technology and Livelihood Education (TLE), equipped students with practical and theoretical knowledge in agriculture and aquaculture while promoting sustainable and environmentally responsible practices. However, the low Mean Percentage Score (MPS) of 60.86 recorded at Sto. Niño National High School during School Year 2024–2025 indicated the need to improve instructional strategies. In response, this study aimed to enhance learning through the integration of E-learning platforms such as YouTube, Canva, and Educaplay.

This study aimed to integrate E-learning Platform to support Grade 7 Agriculture and Fishery Arts Instruction at Sto. Niño National High School, SDO Batangas City during the Second Quarter of School Year 2025-2026. Specifically, it seeks to answer the following questions:

1. How does the following E-Learning Platforms influence the quality of instruction among Grade 7 learners, relative to the use of:
 - 1.1 Youtube;
 - 1.2 Canva; and
 - 1.3 Educaplay?
2. How may the E-Learning Platforms in learning Agri-Fishery Arts instruction classes be described in terms of;
 - 2.1 learning content and
 - 2.2 instructional tasks/activities?
3. How effective are the E-Learning platforms among the learners?
4. What challenges do learners face in the use of E-Learning platforms for Agri-Fishery Arts instruction?
5. Based on the analysis of the study, what activities may be proposed?

2. Materials and Methods

• Research Design:

This study utilized a descriptive research design and survey to examine students' use of online tools and to analyze key issues related to learning. Descriptive research was used to gather, interpret, and present data about the current situation, providing a clear understanding of students' experiences and supporting informed conclusions about the effectiveness of E-learning platforms.

• Participants:

The study involved 35 Grade 7 students from Sto. Niño National High School, SDO Batangas City, during the School Year 2025–2026, all from the same section, thus no

sampling procedure was applied. It aimed to evaluate the effectiveness of E-learning platforms in promoting interactive learning through technology-based activities, real-time feedback, and collaborative engagement. Grade 7 learners were chosen as they represent a critical stage for developing interactive and digital learning skills. The study used a survey questionnaire as the primary data-gathering instrument to assess students' experiences and the impact of these platforms on their learning.

- **Instruments:**

The primary data-gathering instrument used in the study was a survey questionnaire, developed using various sources such as books, magazines, unpublished materials, and other relevant references. The questionnaire was reviewed and validated by the adviser, Master Teacher, and School Principal, whose comments and suggestions were incorporated to ensure its validity before being finalized and administered to the participants. The tool measured:

Influence of E-learning platforms—Youtube, Canva, and Educaplay;
E-learning platforms in terms of learning content and instructional tasks/activities;
Effectiveness of E-learning platforms; and
Challenges encountered by learners.

It used a Likert scale to measure students' responses in terms of influence, agreement, and effectiveness, while the last section identified specific difficulties encountered in using the platforms.

- **Procedure:**

To achieve the objectives of the study, the researcher formally sought permission from the School Head of Sto. Niño National High School through a letter of request. After approval was granted, the purpose of the study was explained to the participants. Parental consent forms and student assent forms were also secured to ensure voluntary participation. The survey questionnaire was then administered after the Second Quarter of School Year 2025–2026, and the collected data were statistically analyzed. Throughout the process, strict confidentiality was observed in accordance with Republic Act No. 10173 or the Data Privacy Act, ensuring that all information was used solely for research purposes. The researcher also ensured ethical compliance by informing participants of their rights, including the right to withdraw at any time, and maintaining anonymity and impartiality in handling all data.

- **Data Analysis:**

Appropriate statistical tools were used to analyze the data gathered from the questionnaires to ensure accurate interpretation of results. Frequency Distribution, Percentage, and Rank were used to identify and organize the challenges encountered by respondents. Weighted Mean was used to determine the average level of responses, while Composite Mean was used to

summarize overall results for each variable. All findings were based on the analyzed and summarized data.

3. Results

Influence of E-learning Platforms in Learning Activities

Table 1: Influence of Instruction using YouTube

	Indicators	Weighted Mean	Verbal interpretation	Rank
1	YouTube videos help me understand complex agricultural concepts more clearly.	3.49	High Influence	5
2	Watching YouTube demonstrations improves my ability to apply agricultural skills in real life.	3.37	High Influence	8
3	YouTube makes agriculture lessons more engaging and interesting.	3.34	High Influence	9
4	The availability of replay and pause features supports my independent learning.	3.51	Very High Influence	4
5	YouTube provides updated and relevant agricultural practices.	3.54	Very High Influence	2.5
6	YouTube motivates me to explore more about agriculture beyond the classroom.	3.26	High Influence	10
7	Visual demonstrations in YouTube make abstract topics easier to understand.	3.54	Very High Influence	2.5
8	YouTube enhances my critical thinking through exposure to diverse farming practices.	3.43	High Influence	6
9	YouTube increases my confidence in performing	3.57	Very High Influence	1

	agriculture-related activities.			
10	YouTube positively contributes to the quality of Agriculture instruction.	3.40	High Influence	7
	Composite Mean	3.45	High Influence	

Table 1 showed that YouTube had a high overall influence on agriculture instruction, with a composite mean of 3.45. The highest weighted mean (3.57) indicated that YouTube greatly increased students' confidence in performing agriculture-related activities, while the lowest weighted mean (3.26) showed that it was less effective in motivating learners to explore beyond the classroom. Most indicators fell under high to very high influence, highlighting that YouTube was particularly effective in improving understanding through visual demonstrations, updated content, and flexible learning features like replay and pause..

Table 2: Influence of Instruction using Canva

	Indicators	Weighted Mean	Verbal interpretation	Rank
1	Canva helps me present agricultural concepts in a creative and organized way.	3.63	Very High Influence	2
2	Designing infographics and posters in Canva improves my understanding of lessons.	3.74	Very High Influence	1
3	Canva develops my digital literacy alongside agricultural knowledge.	3.51	Very High Influence	3.5
4	Canva encourages collaboration when working on group projects in Agriculture.	3.49	High Influence	5.5
5	Canva makes me more motivated to actively participate in agricultural activities.	3.51	Very High Influence	3.5
6	Using Canva helps simplify and visualize complex agricultural processes.	3.46	High Influence	7.5
7	Canva enhances my problem-solving skills through design-based tasks.	3.49	High Influence	5.5

8	Canva improves my ability to communicate agricultural knowledge effectively.	3.46	High Influence	7.5
9	Canva allows me to think critically about how agricultural information is represented.	3.40	High Influence	10
10	Canva positively contributes to the quality of Agriculture instruction.	3.43	High Influence	9
Composite Mean		3.51	Very High Influence	

The table 2 revealed that Canva had a very high overall influence, with a composite mean of 3.51, the highest among the three tools. The highest weighted mean (3.74) showed that Canva strongly helped students improve their understanding through designing infographics and posters, while the lowest weighted mean (3.40) indicated a slightly lower impact on critical thinking about information representation. Overall, Canva excelled in creativity, digital literacy, and active participation, making it highly effective in enhancing both learning and presentation skills in agriculture.

Table 3: Influence of Instruction using Educaplay

	Indicators	Weighted Mean	Verbal interpretation	Rank
1	Educaplay makes agriculture lessons more engaging and enjoyable.	3.37	High Influence	2
2	The use of Educaplay helps me understand agriculture topics more clearly.	3.11	High Influence	7.5
3	Educaplay activities help me recall important agriculture concepts.	3.20	High Influence	6
4	Educaplay boosts me to actively participate during agriculture classes.	3.29	High Influence	3
5	I perform better in	3.26	High Influence	5

	quizzes and activities when Educaplay is used in teaching.			
6	Educaplay help me to learn at my own pace in agriculture lessons.	3.40	High Influence	1
7	The collaborative nature of Educaplay improves my focus and attention in class.	3.31	High Influence	4
8	Educaplay helps me link agriculture lessons to practical/real-life situations.	3.09	High Influence	9
9	I feel more interested to study agriculture because of Educaplay.	2.94	High Influence	10
10	Educaplay enhances the quality of teaching and learning in agriculture.	3.11	High Influence	7.5
	Composite Mean	3.21	High Influence	

The table 3 indicated that Educaplay had a high overall influence, with a composite mean of 3.21, which was lower compared to YouTube and Canva. The highest weighted mean (3.40) showed that Educaplay was most effective in allowing students to learn at their own pace, while the lowest weighted mean (2.94) suggested that it was less effective in increasing students' interest in studying agriculture. Although all indicators were rated as high influence, the results implied that Educaplay was more useful for practice, engagement, and reinforcement activities rather than motivation or deeper understanding

E-Learning Instruction in Agri-Fishery Arts Instruction

Table 4: Learning Content

	Indicators	Weighted Mean	Verbal interpretation	Rank
1	The e-learning platforms provide clear and well-structured agricultural lessons.	3.37	Agree	10

2	The content in agriculture subjects is precise and modernized.	3.57	Strongly Agree	6
3	Digital lessons are easy to understand and suitable for Grade 7 learners.	3.54	Strongly Agree	7
4	The topics covered in e-learning are relevant to agricultural practices	3.71	Strongly Agree	1
5	Online resources (videos, modules, presentations) make learning more engaging.	3.69	Strongly Agree	2
6	The content supports my understanding of both theory and practice in agriculture.	3.40	Agree	9
7	Lessons delivered online are consistent with the learning objectives of the subject.	3.37	Agree	8
8	The digital content encourages me to explore more about agricultural concepts.	3.60	Strongly Agree	5
9	The materials are visually appealing and enhance my interest in agriculture.	3.66	Strongly Agree	3.5
10	The content delivered through e-learning platforms improves my overall academic performance in agriculture.	3.66	Strongly Agree	3.5
Composite Mean		3.56	Strongly Agree	

E-learning platforms showed a very strong impact, with a composite mean of 3.56 (Strongly Agree). The highest mean (3.71) indicated that the content was highly relevant to real agricultural practices, while the lowest mean (3.37) showed slightly lower ratings in clarity and alignment, though still positive. Overall, the content was engaging, updated, and improved performance.

Table 5: Instructional Tasks/Activities

	Indicators	Weighted Mean	Verbal interpretation	Rank
1	The activities provided through e-learning platforms help me understand the lesson better.	3.57	Strongly Agree	1
2	Tasks and exercises given online encourage me to apply agricultural concepts.	3.37	Agree	7
3	Online activities allow me to practice problem-solving in agriculture	3.49	Agree	3.5
4	Group projects assigned through e-learning tools enhance collaboration with classmates	3.54	Strongly Agree	2
5	The tasks are appropriate for my skill level and grade.	3.40	Agree	6
6	Instructional activities motivate me to participate actively in class.	3.29	Agree	9
7	The activities improve my creativity and critical thinking in agriculture	3.34	Agree	8
8	The tasks allow me to establish what I have learned in practical ways	3.26	Agree	10
9	Online assessment and exercises encourage responsibility and accountability.	3.43	Agree	5
10	Instructional tasks in e-learning platforms improve the quality of my learning outputs in agriculture.	3.49	Agree	3.5
	Composite Mean	3.42	Agree	

E-learning platforms had a positive impact, with a composite mean of 3.42 (Agree). The highest mean (3.57) showed that activities helped students understand lessons, while the lowest mean (3.26) indicated weaker support for practical application. Activities supported learning but were less effective in creativity and engagement. Learning content (3.56) was stronger than instructional tasks (3.42), indicating that E-learning was more effective in delivering content than in enhancing activities and application.

Effectiveness of using E-Learning Platform in Learning Activities

Table 6: Effectiveness of Using E-Learning Platforms in Learning Activities

	Indicators	Weighted Mean	Verbal interpretation	Rank
1	E-learning platforms make agriculture lessons more interesting.	3.00	Effective	10
2	The use of online tools improves my understanding of agricultural concepts.	3.49	Effective	2.5
3	Digital resources such as videos and modules help me learn more effectively.	3.34	Effective	8
4	E-learning platforms motivate me to study agriculture.	3.37	Effective	7
5	I can apply what I learn in agriculture better through e-learning.	3.40	Effective	5.5
6	Online platforms improve the quality of my project outputs.	3.49	Effective	2.5
7	I find e-learning platforms easy to understand in my classes.	3.31	Effective	9
8	Collaboration with classmates is better when using online platforms.	3.43	Effective	4
9	E-learning platforms contribute to my overall academic performance.	3.40	Effective	5.5
10	E-learning is effective in supporting my learning in agriculture.	3.69	Very Effective	1
	Composite Mean	3.39	Effective	

The table 6 showed that E-learning platforms were generally effective, with a composite mean of 3.39 (Effective). The highest weighted mean (3.69) indicated that e-learning was very effective in supporting overall learning in agriculture, while the lowest mean (3.00) showed that it was less effective in making lessons more interesting. Most indicators were rated effective, particularly in improving understanding, project outputs, collaboration, and academic performance. However, the results suggested that e-learning was slightly weaker in engagement and ease of use, though still positively perceived overall.

Table 7: Challenges in using E-learning Platforms in Learning Activities

	Indicators	Frequency	Percentage	Rank
1	I experience slow or unstable internet connection when watching YouTube lessons.	16	45.71	1
2	I get distracted by unrelated videos or ads while using YouTube for learning.	15	42.86	2
3	Some educational videos on YouTube are difficult to understand without teacher guidance.	12	34.29	5.5
4	I find it hard to design or edit outputs using Canva tools and templates.	13	37.14	4
5	I experience difficulty saving or downloading my work in Canva due to weak internet connection.	11	31.42	8
6	I lack creativity or knowledge in making attractive layouts or designs using Canva.	12	34.29	5.5
7	I have difficulty logging in or accessing Educaplay activities.	9	25.71	9
8	Some Educaplay activities load slowly or freeze while I am answering them.	11	31.43	7
9	I find it hard to understand the instructions in certain Educaplay tasks.	7	20	11.5
10	I encounter technical problems or confusion when switching between YouTube, Canva, and	6	17.14	13

	Educaplay for different activities.			
11	I feel less interested in learning when lessons rely too much on online platforms like YouTube, Canva, or Educaplay.	5	14.29	14
12	I find it challenging to manage my time when doing online activities using these platforms.	5	14.29	15
13	I have trouble understanding instructions or lessons when there is no clear explanation from the teacher during online activities.	14	40	3
14	I experience difficulty remembering or applying what I learned from YouTube, Canva, or Educaplay activities.	7	20	11.5
15	I find it hard to collaborate or share my work with classmates when using Canva or Educaplay.	8	22.86	10

The four main challenges identified were slow or unstable internet connection (45.71%) when using YouTube, distractions from videos or ads on YouTube (42.86%), lack of teacher guidance that made lessons difficult to understand (40%), and difficulty in using Canva tools for designing outputs (37.14%), all of which affected students' overall learning experience.

Proposed Activities in the Integration of E-Learning Platforms

Proposed Activities about the Integration of E-Learning Platforms to Support
Agri-Fishery Instruction at Sto. Niño National High School

Activity	Objectives	Strategies	Person Involved	Resources	Expected Output	Budget Requirement
1. Enhancement of Educaplay	To enhance interactive learning by improving and updating digital games and quizzes using Educaplay.	- Review existing activities - Design new Educaplay games (quizzes, matching, word games) - Test and implement in class.	TLE Teacher, Students	Smartphone, Internet connection, Educaplay account	Learner's Activity Sheets (LAS)	₱1500,000 (printing and editing materials)
2. Enhancement of School Internet	To provide faster and more reliable internet connectivity for effective online learning and teaching.	- Conduct assessment of current internet performance - Coordinate with internet provider - Install routers or upgrade bandwidth.	Principal, ICT Coordinator, Service Provider, Teachers	Wi-Fi routers, modem, cables, service provider plan ₱1,000 (printing and editing materials)	Activity Proposal about providing stable internet connection accessible on Grade 7 Molave	₱13,000 (installation fee, additional router)
3. Develop Learning Materials using Canva	To produce teacher's manual about the process of using canva, youtube and educaplay.	- Conduct Canva orientation/training - Create Teachers Manual - Review and finalize outputs.	Teachers, TLE Teacher, Students (for project tasks)	Smartphone, Laptop, Canva app	Teachers Manual in using Youtube, Canva and Educaplay	₱1,000 (printing and editing materials)
4. Editing Canva Output	To improve and finalize Canva-produced learning materials for classroom use and publication.	- Review created outputs - Edit content, layout, and design - Approve final versions for submission or display.	Teachers, Editors, ICT Coordinator	Smartphone Canva account, laptop/computer, internet connection	Learner's Activity Sheets (LAS)	₱1500,000 (printing and editing materials)

The table outlined activities integrated into E-learning platforms to support Agri-Fishery learning at Sto. Niño National High School. These included enhancing Educaplay, improving internet access, creating and modifying Canva-based learning materials. Each activity specified objectives, procedures, responsible persons, materials, expected outcomes, and budget. The plan aimed to enhance interaction, ensure stable digital access, and produce quality learning resources.

4. Discussion

Interpretation of Findings:

The results showed that E-learning platforms such as YouTube, Canva, and Educaplay had a generally positive influence on Agri-Fishery Arts instruction. Canva had the highest impact, particularly in enhancing creativity and digital skills, while YouTube effectively improved understanding and confidence through visual learning. Educaplay supported practice and engagement but had a lower impact compared to the other tools. Learning content was rated

stronger than instructional tasks, and overall effectiveness was positive, although challenges such as internet issues and limited guidance were evident.

Comparison to Existing Studies:

The present study was consistent with Encarnacion (2021), which found that e-learning was positively perceived by both teachers and students as an effective tool for improving instruction and knowledge acquisition. Similarly, this study showed that E-learning platforms such as YouTube, Canva, and Educaplay enhanced learners' understanding, participation, and academic performance. Both studies highlighted E-learning as a viable and flexible instructional approach that supported independent and collaborative learning. However, unlike Encarnacion (2021), which presented a more optimistic view, this study also identified challenges such as poor internet connection, distractions, and limited guidance, indicating that effective implementation depended on addressing these barriers.

Implications for Practice and Policy:

The findings indicated that teachers should carefully integrate E-learning platforms to ensure a balance between delivering content and providing interactive learning activities. Schools needed to improve digital infrastructure, especially internet connectivity, and provide teachers' manuals and activity sheets to support both teachers and learners. In addition, policies should have focused on strengthening guided instruction to reduce distractions and enhance students' learning outcomes.

Study Limitations:

The study was limited to Grade 7 Molave and focused only on the least mastered competencies in the 2nd Quarter of SY 2024–2025. It did not include other grade levels, other quarters, or factors such as study habits, home environment, socio-economic status, and access to learning materials. Thus, the findings apply only to the specific group, subject, and timeframe covered.

5. Conclusion

Based on the findings, the following conclusions are drawn:

1. E-learning platforms such as YouTube, Canva, and Educaplay significantly enhance the teaching and learning process as evident by a composite mean of 3.45 interpreted as high influence.
2. The majority of E-Learning platforms used in Agri-Fishery Arts provide learners with dynamic and appealing visuals, and include meaningful hands-on experiences that increase their understanding and participation during class time.
3. E-learning platforms provide every student with a greater opportunity to participate, develop their comprehension, be able to learn on their own and to work collaboratively with others.
4. The challenges and limitations of having reliable internet access are major barriers to the participation of students in online learning experiences.

Recommendations

The following recommendations are provided to strengthen the use of technology in guided activities for Grade 7 TLE students:

1. Teachers may integrate these e-learning platforms in daily lessons to enhance student engagement and understanding.
2. Interactive learning activities may be designed to promote hands-on, skill-based experiences through digital simulations and interactive tasks.
3. Teachers may maximize the use of e-learning platforms to support diverse learning styles and needs.
4. School may ensure consistent access to digital resources and internet connectivity for effective online learning

References

A.Books

- Bajaj, M. (2024). The Role of Digital Learning Platforms in Student Engagement. *Archives of Education*, 28(4), 112-126. <https://archives.publishing.org.in/index.php/archives/article/view/428>
- Dagohoy D. (2023). Online learning, Social media, Supplemental tool, Video lessons, YouTube utilization Department of Arts and Sciences Education, UM Tagum College, Philippines. Vol. 3 No. 1 (2023)
- Lonon, M., & Oted, J. (2024). Utilization of educational youtube videos: an approach in enhancing junior high school students' oral communication skills. *Journal of Interdisciplinary Perspectives*, Vol. 2, Number 6, pp. 157-165.
- Ruth C.C, Richard E. M. (2023). *E-Learning and the Science of Instruction: Proven Guidelines for Consumers*
- Yang. S., & Wang.W.(2022). The role of academic resilience, motivational intensity and their relationship in efl learners'academic achievement. *Frontier in Psychology*.12.823537.doi: 10.3389/fpsyg PMID:35153940
- Qureshi, M.I.,; Khan, N.,; Raza, H.(2021). *Digital Technologies in Education 4.0. Does it Enhance the Effectiveness of Learning*. <http://hdl.handle.net/123456789/25661>
- Rawashdeh.A.Z.I & Mohammed E.Y (2021). *Advantages and Disadvantages of Using e-Learning in University Education: Analyzing Students' Perspectives*. Published by Academic Publishing International LimitedCurtis Farm, Kidmore End, Nr Reading, RG4 9AY, United KingdomISSN: 1479-4403.

B.Unpublished Materials

- Alfaro, S., M., (2022) *Linking Experiential Learning and Real-life A Design Case featuring Immese Learning*. Golden Gate Colleges, Batangas City
- Alvarez, Jenelyn E. (2022). *Interactive games to teach learners in hybrid learning approach*
- Akpen, C. N., Asaolu, S., Atobatele, S., Okagbue, H., & Sampson, S. (2024). Impact of online learning on student's performance and engagement: A systematic review. *Discover Education*, 3, Article 205. <https://doi.org/10.1007/s44217-024-00253-0>
- Camarig, A (2025) *Technology Supported Strategies in the Development of Speaking Skills among Grade 9 Students of District 1 in the Division of the Batangas City*. Golden Gate Colleges, Batangas City
- De Castro, S.,(2025) *Students' Performance and strategies in Teaching Economics among Junior High School in Congressional District III SDO Batangas Province*, Golden Gate Colleges, Batangas City
- Encarnacion, Riah F. Elcullada; Galang, Annjeannette Alain D.; Hallar, Byron Joseph A. Online Submission, *International Journal of Computing Sciences Research* p383-397 2021
- Gabionza, L., A., (2024). *Technology Integration and Assessment Method in Science teaching among secondary teachers in Congressional District II Division of Batangas City*, Golden Gate Colleges, Batangas City

- Illustre, L., (2025) Technology-Based Assessment Tools in teaching TLE among Public School in Mandaluyong City. Golden Gate Colleges, Batangas City
- Magnaye JE., (2020) Utilization of Information and Communication Technology Based Instructional Materials among Public Secondary Schools in Division of Batangas City. Golden Gate Colleges, Batangas City
- Quijano, Decirree Ann. (2023). Interactive Games: A Tool to Enhance Vocabulary Skills Among Grade 6 Learners at Libato Elementary School.
- Ross, S. M. (2020). Technology infusion in K-12 classrooms: A retrospective look at three decades of challenges and advancements in research and practice. *Educational Technology Research & Development*, 68(5), 2003–2020.
- Salazar, A., (2024) Integrating Digital Tool in Matatag Curriculum Based Math Instruction Among Grade 5 learners, Golden Gate Colleges, Batangas City
- Viberg, O. (2020), Integrating Digital Technology in Mathematics Education; A Swedish Case Study

C.Journals, Periodicals and Magazines

- Al-Qadri, M., & Khan, R. (2022). The role of e-learning platforms in enhancing student engagement in secondary education. *International Journal of Educational Technology*, 19(3), 45–58. <https://doi.org/10.1007/s40979-022-00185-7>
- Akmad, A., & Abatayo, A. V. (2024). Caught in the slow lane: Effects of unstable internet connectivity on accessing academic resources and collaborative learning. *Journal of Interdisciplinary Perspectives*, 2(9), 278–286. <https://doi.org/10.69569/jip.2024.0370>
- Alshaikhi, T., & Khasawneh, M. A. S. (2025). Exploring digital distractions in the use of YouTube for enhancing foreign language writing proficiency. *International Journal of Advanced and Applied Sciences*, 12(4), 62–70. <https://doi.org/10.21833/ijaas.2025.04.008>
- Barahona-Ibarra, A. E. (2025). Educaplay y el desarrollo de competencias científicas en Ciencias Naturales. *Cognópolis Journal of Education and Learning*. <https://revistasinstitutoperspectivasglobales.org/index.php/Cognopolis/article/download/381/792/979>
- Cahyani, N. (2025). Penggunaan Media Educaplay dalam Pembelajaran Bahasa Arab untuk Meningkatkan Keterampilan Menulis. UIN Sunan Gunung Djati Digital Library. <https://digilib.uinsgd.ac.id/122290/>
- Cañete, M. A., & Miranda, R. F. (2022). Challenges of delivering agriculture instruction through online platforms in Philippine high schools. *Journal of Agricultural Education and Extension*, 28(4), 512–529
- Capilla et. al 2020. *Journal of technology and science education*, 12(3) <https://www.jotse.org/index.php/joteissue/view/39>
- Chen, H., & Huang, Y. (2024). The Impact of Digital Learning Platforms on Student Motivation in High School. *Journal of Education, Humanities and Social Sciences*, 39, 391-395.

- Dela Cruz, M. L., & Ramirez, J. P. (2022). Digital content and e-learning platforms in agricultural instruction: Overcoming barriers in rural schools. *Philippine Journal of Educational Technology*, 19(2), 44–59
- Dunham, S., Gathercole, S. E., & Alloway, T. P. (2020). The psychology of following instructions and its implications. *Frontiers in Psychology*, 11, 1–9. <https://doi.org/10.3389/fpsyg.2020.00722>
- Lapada, A. A., Miguel, F. L., Robledo, D. A., & Alam, Z. F. (2020). Teachers' challenges in remote education: A Philippine case. *International Journal of Academic Multidisciplinary Research*, 4(8), 25–31.
- Mojica, J. A. P. (2020). ICT integration and digital learning practices in Philippine basic education. *Philippine Journal of Educational Technology*, 5(2), 45–58.
- Maryunani. (2021). Meningkatkan Prestasi Belajar Siswa dalam Pembelajaran Daring di Masa Pandemi Melalui Aplikasi Canva untuk Kelas VI SDN Krembangan Selatan III Surabaya. *Jurnal Inovasi Pendidikan Dasar*, 4(1), 190–196.
- Panganiban, L. R., Santos, M. T., & Cruz, J. E. (2023). Integrating e-learning platforms in agricultural education: Enhancing accessibility and engagement through digital tools. *Philippine Journal of Educational Technology*, 9(2), 45–58.
- Pedroso, J., E., P., Sulleza, R.V., S., Francisco, K., H., M., C., Noman, A., J., O., & Martinez, C., A., V. (2023). Students' Views on Using Canva as an All-In-One Tool for Creativity and Collaboration. *Journal of Digital Learning and Distance Education*, 2(2), 443-461.
- Petrescu, D. G. (2023). Students' perceptions on how e-learning platforms in higher education can be refined to increase the quality of online educational services. *Journal of Educational Technology & Society*, 26(2), 15–27. <https://pmc.ncbi.nlm.nih.gov/articles/PMC10719792/>
- Rahman, A., & Muallim, A. (2024). Digital Gamification for Vocabulary Growth: Evaluating Educaplay for EFL Learners in a Boarding School Setting. *Journal of Modern Pedagogical and Curriculum Innovations*. <https://www.journalmpci.com/index.php/selec/article/view/403>
- Rich, J. (2020). Impact of online learning on high school agricultural education: Teachers' perceptions and practices. Auburn University. Retrieved from https://etd.auburn.edu/bitstream/handle/10415/7472/Rich_Jamie_Dissertation_Dec_2020.pdf?sequence=2
- Ríos-Muñoz, G. R., Fuster-Barcelo, C., & Muñoz-Barrutia, A. (2025). The impact of gamification on learning outcomes: Experiences from a Biomedical Engineering course. *arXiv*. <https://arxiv.org/abs/2509.06126>
- Ulery, A. (2020). Impact of multimedia learning tools in agricultural science education. *National Science Education*, 2(1), 11–20. <https://doi.org/10.1002/nse2.20011>
- Vargas-Saritama, J., & Espinoza-Celi, F. (2024). Educaplay as a Tool to Potentiate English Vocabulary Retention and Learning. *Education, Psychology, and Social Research Journal*. <https://epsir.net/index.php/epsir/article/download/614/308/4704>

- Villanueva, C. D., Robles, H. G., & Sarmiento, R. P. (2024). Collaborative e-learning tasks and skill development in agricultural studies: A digital approach to experiential learning. *Journal of Agricultural and Technical Education*, 10(3), 64–80.
- Yahaya, N. H., & Ahmad, S. R. (2025). The impact of YouTube integration on student engagement and understanding in digital learning environments. *International Journal of Educational Media and Technology*, 11(1), 23–39.
- Zou, Y. (2025). Digital learning in the 21st century: Trends, challenges, and innovations. *Frontiers in Education*, 10, 1562391. <https://doi.org/10.3389/feduc.2025.1562391>

D.Legal Documents

- Department of Education (Philippines). (2019, August 22). DepEd Order No. 21, s. 2019: Policy guidelines on the K to 12 Basic Education Program. content/uploads/2019/08/DO_s2019_021.pdf
- Department of Education. (2015). DepEd Order No. 8, s. 2015: Policy guidelines on classroom assessment for the K to 12 Basic Education Program. Department of Education