

Digibook as an Innovative Supplemental Tool in Enhancing Learners' Engagement and Academic Performance in Araling Panlipunan

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Abstract

This study would like to determine the effect of Digibook as an innovative supplemental tool to the learners' engagement and academic performance in Araling Panlipunan. Specifically, it sought to identify the level of acceptability of using Digibook as an innovative supplemental tool, instructional and technical quality, level of learners' engagement, emotional and social engagement, level of learners' performance, difference between the level of acceptability of Digibook to the level of learners' engagement and summative test results, and the difference between the level of learners' engagement.

The quasi-experimental design was used to meet the objectives of the study. The study's instrument was a survey questionnaire checklist, and the data acquired from it was then analyzed using statistical methods such as weighted mean, standard deviation, regression analysis, and paired T-test. The study involved twenty (20) Araling Panlipunan teachers and one hundred eighty-four (184) learners from Pedro Guevara Memorial National High School.

In accordance with the findings of the study, the tool Digibook had been found to be completely acceptable in terms of its content, instructional, and technical quality. Also, the level of learners' engagement was found to be very high. There was also a remarkable increase and improvement in the summative test results of the Grade 7 learners compared to their initial formative test. Furthermore, Digibook had a significant effect on learners' cognitive engagement, but it did not have a significant effect on the emotional and social engagement of the learners.

The results of the study revealed a significant effect of Digibook on learners' academic performance, with a notable improvement in their overall summative test results. Furthermore, Digibook was also found to have a positive effect on learners' cognitive engagement, with learners showing increased motivation and interest in the learning material. However, data did not support a significant effect on emotional and social engagement, suggesting that the Digibook did not have a profound effect on learners' affective or interpersonal aspects of learning. Consequently, the null hypothesis was rejected, indicating that Digibook had a notable and remarkable significant influence on learners' outcomes.

Researchers and developers of instructional materials like Digibook may incorporate interactive features, such as quizzes and puzzles, to enhance cognitive engagement and social interaction among students. Additionally, concise writing and thought-provoking questions can help maintain readers' attention and foster a sense of community and shared ownership. Finally, the use of high-quality graphics and soothing narration can make the experience more effective and immersive, catering to different learning styles and adding a human touch to the material.

Keywords: Cognitive; academic performance; engagement

1. Introduction

History is an essential field that influences and shapes our understanding of present-day events and occurrences. Hence, the teaching of history should focus on letting the students understand the context of every crucial circumstance in the past rather than memorizing tons of facts that would suddenly be forgotten, and they should be able to manifest critical thinking and give their fair judgment to certain phenomena. In this way, the true essence of learning history can be said to be meaningful and worthwhile.

To attain and achieve the above-mentioned objective, the teacher must carefully choose the best and most appropriate teaching strategy that would suit and meet the interests of his diverse learners. Unfortunately, due to limited time in the classroom, and there are vast amount of topics that need to be taught in one academic year, teachers have no choice but to compress and shorten the delivery of some lessons, and collaborative and peer learning are rarely seen in the class, since it consumes a lot of time and both the students and teachers have so much to settle and accomplish (Vandrie, 2020).

Additionally, students who are in 7th Grade are not that capable of doing several tasks confidently and independently. Since they are adjusting from being a childish individual to becoming an independent teenager, teachers' intervention and creative skills in pedagogy are necessary to make the students learn and have fun, at the same time while doing their respective tasks.

One of the best materials that teachers can use to facilitate learning in History subject is the Digibook or Digital Storybook. The majority of the people grew up listening to stories or reading them by themselves. Some have learned how to interact, think, and analyze through reading storybooks. What makes a storybook a great source of knowledge is that it contains graphics that are visually appealing to children, and it is written in a way that seems understandable for everyone. If a teacher utilizes the use of a storybook in teaching history, students will be entertained and captivated by it. It will be easy for them to understand and recall several highlights in the past as it is written in a narrative form. It is something new in the eyes of the learners, and they will find it fascinating.

Upon realizing those storybooks can be utilized as a helpful supplemental tool, the researcher wants to investigate, how this will affect the engagement and academic performance of the students. This question sparks the researcher's curiosity and motivates them to seek the answer through this study.

1.1 Statement of the Problem

Specifically, it sought answers to the following questions.

1. What is the level of acceptability of using Digibook as an innovative supplemental tool as rated by teachers in terms of:
 - 1.1 Content Quality;
 - 1.2 Instructional Quality; and
 - 1.3 Technical Quality?
2. What is the level of learners' engagement in terms of:
 - 2.1 Cognitive Engagement;
 - 2.2 Emotional Engagement; and
 - 2.3 Social Engagement?
3. What is the level of learners' performance in terms of:
 - 3.1 Formative; and
 - 3.2 Summative Test?
4. Is there a significant difference between the level of acceptability of Digibook as an innovative supplemental tool and the level of learner engagement?

5. Is there a significant difference between the level of acceptability of Digibook as an innovative supplemental tool and the level of learners' summative test results?
6. Is there a significant difference between the level of learners' engagement in terms of their formative and summative test?

2. Methodology

In this study, the researcher used the quasi-experimental design to find out the effectiveness of Digibook as an Innovative Supplemental Tool in Enhancing Learners' Engagement and Academic Performance among one hundred eighty-four (184) grade 7 students at Pedro Guevara Memorial National High School.

A quasi-experimental design was used based on White et al. (2014) to select a comparison group that closely matches the treatment group in terms of pre-intervention characteristics. The comparison group serves as a representation of what would have happened if the program or policy was not implemented (the counterfactual). Therefore, any differences in outcomes between the treatment and comparison groups can be attributed to the program or policy.

3. Results and Discussion

This chapter presents the data gathered to determine the effect of using digibook as an innovative supplemental tool in teaching

Level of Acceptability of Digibook

Table 1. Level of Acceptability of Digibook as an Innovative Supplemental Tool as Rated by Teachers in Terms of Content Quality

Statements	Mean	SD	Remarks
The discussion of the topic is more Interesting by using this Digibook	5.00	0.00	Strongly Agree
The content of this Digibook is reliable and correct, and I completely understand and master the knowledge about the topics.	4.95	0.22	Strongly Agree
Digibook can be used for developing students' performance.	5.00	0.00	Strongly Agree
Teachings by using Digibook motivate students.	4.95	0.22	Strongly Agree
Digibook helps students to gain more knowledge of the content.	4.95	0.22	Strongly Agree
Students can understand History better when taught using Digibook.	4.95	0.22	Strongly Agree
The usage of Digibook can help students to think at a higher level.	4.95	0.22	Strongly Agree
Students' interests increase if they are taught using Digibook.	5.00	0.00	Strongly Agree

Many things can be learned by students from Digibook.	4.90	0.31	Strongly Agree
Digibook increases understanding, attention, and interest, and improves motivation toward learning.	5.00	0.00	Strongly Agree
Overall Mean = 4.97			
Standard Deviation = 0.18			
Verbal Interpretation = Completely Acceptable			

Table 1 presents the Level of respondents' perception of using Digibook as an innovative supplemental tool in terms of content quality.

The ratings for each statement range from 1 to 5, with 5 indicating Strongly Agree and 1 indicating the opposite. The mean score across all statements is 4.97, which suggests that, on average, respondents strongly agreed with the statements regarding the Digibook's effectiveness. The standard deviation of 0.18 indicates that the responses were quite consistent and clustered closely around the mean, indicating high agreement among respondents. The verbal interpretation Completely Acceptable is derived from the high mean score and low standard deviation, indicating a favorable perception and consensus among respondents about Digibook's content quality.

Overall, based on the data presented below, the mean which is 4.97 suggests that teachers find the Digibook to be highly effective, reliable, and capable of improving student engagement, understanding, motivation, and performance across various subjects, especially in History. All of the statements were interpreted as "Strongly Agree".

Table 2. Level of Acceptability of Digibook as an Innovative Supplemental Tool as Rated by Teachers in Terms of Instructional Quality

Statements	Mean	SD	Remarks
The purpose of the material is well-defined.	5.00	0.00	Strongly Agree
The material fulfills its stated intent.	5.00	0.00	Strongly Agree
Learning goals are defined clearly and are observable.	5.00	0.00	Strongly Agree
The difficulty level is appropriate for the intended user.	5.00	0.00	Strongly Agree
Graphics are used for appropriate instructional reasons.	5.00	0.00	Strongly Agree
The content is interesting, exciting, stimulating, and engaging.	4.90	0.31	Strongly Agree
The material effectively enhances the target user's imagination.	5.00	0.00	Strongly Agree
Feedback on the target user's responses is effectively employed.	5.00	0.00	Strongly Agree
Target users can control the rate and sequence of	4.90	0.31	Strongly Agree

presentation and review.			
Instruction is integrated with the target user's previous experience.	5.00	0.00	Strongly Agree
Overall Mean = 4.98			
Standard Deviation = 0.13			
Verbal Interpretation = Completely Acceptable			

Table 2 presents the Level of respondents' perception of using Digibook as an innovative supplemental tool in terms of Instructional quality. It is composed of statements that aim to measure the goals, objectives, and appropriateness for the intended user, graphics, and effectiveness of the material to enhance the user's imagination. Mean and standard deviation were also employed in treating the gathered data.

The overall mean of 4.98 with a supported standard deviation of 0.13 indicates that the respondents thought using Digibook was Completely Acceptable. This indicates that the tool is outcome-based and concentrates on student actions and successes, such as learning outcomes and course grades, persistence, or choice, which varies by instructor, in terms of instructional quality.

Table 3. Level of Acceptability of Digibook as an Innovative Supplemental Tool as Rated by Teachers in Terms of Technical Quality

Statements	Mean	SD	Remarks
The material contains icons that are visually pleasing and easy to understand.	4.95	0.22	Strongly Agree
The worktext uses appropriate text font size and style	5.00	0.00	Strongly Agree
The work text makes use of illustrations that are interesting and relevant to the lessons.	5.00	0.00	Strongly Agree
The material contains visuals that fit the level of interests, knowledge, and skills of the target learners	5.00	0.00	Strongly Agree
It incorporates illustrations that simplify complex concepts and contribute to the improvement of proficiency in unmastered lessons	5.00	0.00	Strongly Agree
The material includes individual development as reflected in the individual, peer, and one one-on-one remedial and home study sessions.	4.95	0.22	Strongly Agree
Visuals sustain interest and do not distract the user's attention.	5.00	0.00	Strongly Agree
Visuals provide an accurate representation of the concept discussed.	5.00	0.00	Strongly Agree
The user support materials (if any) are effective.	4.95	0.22	Strongly Agree

The design allows the target user to navigate freely through the material.	5.00	0.00	Strongly Agree
Overall Mean = 4.99			
Standard Deviation = 0.12			
Verbal Interpretation = Completely Acceptable			

Table 3 presents the Level of respondents' perception of using Digibook as an innovative supplemental tool in terms of technical quality.

As a supplemental tool, technical quality was strongly agreed upon by the teachers in the school. The visuals sustain interest and do not distract the user's attention to a very great extent ($M=5.00$, $SD=0.00$). The appropriateness of text, concepts, illustrations, and visuals also received favorable responses from the teachers ($M=5.00$, $SD=0.00$).

The overall mean of 4.99 with a supported standard deviation of 0.12 indicated that the level of respondents' perception of using Digibook as an Innovative Supplemental Tool in terms of Technical Quality was Completely Acceptable. This means that the expressive nature of service delivery is determined by what the clientele receives as a result of interactions with the service and how the students receive the service.

Level of Learners Engagement

Table 4. Level of Learners' Engagement in Terms of Cognitive Engagement

Statements	Mean	SD	Remarks
Digibook is easy to read and understand.	4.48	0.50	Strongly Agree
The information in the Digibook is written concisely.	4.40	0.49	Strongly Agree
Digibook contains some words that enrich my vocabulary.	4.58	0.51	Strongly Agree
Digibook contains graphics that enable the readers to understand the lessons better.	4.73	0.47	Strongly Agree
Digibook enables me to achieve higher test results.	4.63	0.48	Strongly Agree
Overall Mean = 4.57			
Standard Deviation = 0.50			
Verbal Interpretation = Very High Engagement			

Table 4 shows the level of learners' engagement in terms of cognitive engagement while using Digibook. Students strongly agreed that the graphics used enable the readers to understand the lesson ($M=4.73$, $Sd=0.47$), the information is written concisely.

The Overall Mean of 4.57, along with the Standard Deviation of 0.50, is categorized as Very High engagement. This suggests that overall, respondents strongly agreed with the provided indicators related to their cognitive engagement while using the Digibook. All indicators received notably high ratings, indicating that users found the Digibook easy to comprehend, informative, vocabulary-enriching, and visually helpful, and believed it positively impacted their test results. The high ratings across these areas suggest that the Digibook is effectively engaging learners cognitively, contributing to their learning experience and performance.

Table 5. Level of Learners' Engagement in Terms of Emotional Engagement

Statements	Mean	SD	Remarks
I enjoy reading lectures included in the Digibook.	4.62	0.50	Strongly Agree
I feel motivated to study with the help of Digibook.	4.47	0.52	Strongly Agree
I am so focused on reading Digibook that I do not realize the time passing.	4.46	0.52	Strongly Agree
Digibook can stimulate my interest in studying.	4.66	0.48	Strongly Agree
Digibook explains the topic well and it is relatable to my everyday experiences.	4.57	0.54	Strongly Agree
Overall Mean = 4.56			
Standard Deviation = 0.52			
Verbal Interpretation = Very High Engagement			

Table 5 shows the level of learners' engagement in terms of emotional engagement while using Digibook. Students strongly agreed that the lectures included in the Digibook were truly enjoyable and captivating ($M=4.62$, $SD=0.50$).

The Overall Mean of 4.56, along with the Standard Deviation of 0.52, is categorized as Very High engagement. This suggests that overall, respondents strongly agreed with the provided indicators related to their emotional engagement while using the Digibook.

Table 6. Level of Learners' Engagement in Terms of Social Engagement

Statements	Mean	SD	Remarks
I can easily accomplish content-based activities due to the lessons I learned from Digibook.	4.60	0.49	Strongly Agree
Reading Digibook helps me to strengthen my intrapersonal and interpersonal communication.	4.60	0.50	Strongly Agree

I can easily convey the information I learned from the Digibook.	4.49	0.50	Strongly Agree
I do not feel bored upon reading digibook.	4.51	0.52	Strongly Agree
Digibook helps me to participate actively in various classroom activities.	4.68	0.49	Strongly Agree
Overall Mean = 4.58			
Standard Deviation = 0.51			
Verbal Interpretation = Very High Engagement			

Table 6 shows the level of learners' engagement in terms of social engagement while using Digibook. Students strongly agreed that they can easily accomplish content-based activities with Digibook ($M=4.60$, $SD=0.49$) and it can also strengthen their intrapersonal and interpersonal communication ($M=4.60$, $SD=0.50$). Moreover, Digibook positively impacts the participation level of the students inside the classroom with a mean of 4.68 and a standard deviation of 0.49.

The Overall Mean of 4.58, along with the Standard Deviation of 0.51, is categorized as Very High engagement. This suggests that overall, respondents strongly agreed with the provided indicators related to their social engagement while using the Digibook.

Levels of Learners' Performance in terms of Formative and Summative Tests

Table 7 shows the corresponding mean and standard deviation for both the formative and summative tests and their remarks.

Table 7. Level of Learners' Performance in Formative and Summative Tests

Test	Mean	SD	Remarks
FORMATIVE TEST	6.52	2.16	Low
SUMMATIVE TEST	18.78	1.25	Very High

On top of this, the mean score of 18.78 on the Summative test indicates a significantly higher average performance level compared to the Formative test. The lower standard deviation of 1.25 implies less variability in scores among individuals. Overall, the performance on this test is categorized as "Very High."

In summary, the learners' performance on the Summative test appears to be substantially higher than on the Formative test. The Formative test indicates a lower level of performance with greater variability among scores, while the Summative test demonstrates very high-performance levels with less score variability among the learners.

Table 8. Effect of Using Digibook as an Innovative Supplemental Tool to the Level of Learners' Engagement

95 % CI						
Learner's Engagement	Beta	SE	LL	UL	β	p
Cognitive	.030	.011	.009	.052	.200	.007*

Engagement						
Emotional Engagement	-1.207	.933	-3.169	.754	-.292	.212
Social Engagement	-1.456	1.118	-3.805	.892	-.294	.209

Note: * $p < .05$

Table 8 shows the effect of using Digibook as an innovative supplemental tool on the level of learners' engagement.

The use of the Digibook shows a significant positive effect on Cognitive Engagement, with a Beta value of 0.030, and a significant p-value of 0.007 (<0.05). It suggests that using the Digibook as a supplemental tool has a small but measurable positive impact on cognitive engagement. In terms of emotional engagement and social engagement: There doesn't appear to be a significant effect of using the Digibook on Emotional or Social Engagement. Both Beta values have negative numbers, but the p-values are greater than 0.05, indicating that these effects are not statistically significant.

In summary, while using the Digibook seems to have a positive impact on Cognitive Engagement, there isn't enough evidence to suggest significant effects on Emotional or Social Engagement based on this analysis.

Table 9. Effect of Using Digibook as an Innovative Supplemental Tool to the level of Learners' Summative Results

95 % CI						
	Beta	SE	LL	UL	β	p
Summative	.013	.510	.042	3.287	.269	.047*

Note: * $p < .05$

Table 9 shows the effect of using Digibook as an innovative supplemental tool on the level of learners' summative results.

The use of the Digibook as an innovative supplemental tool shows a small but positive effect on learners' summative results, indicated by the Beta value of 0.013 confidence Interval. The 95% confidence interval for the effect of using the Digibook on summative results ranges from 0.042 to 3.287. This means that the true effect size of using the Digibook on summative results is likely to lie within this range for the population. The p-value of 0.047 is less than 0.05, indicating statistical significance. This suggests that the relationship observed between using the Digibook and learners' summative results is unlikely to have occurred by chance.

In summary, based on this analysis, using the Digibook as an innovative supplemental tool appears to have a small but statistically significant positive effect on learners' summative results.

Table 10. Significant difference between the level of learners' engagement in terms of their formative and summative test

Formative	Summative	95% CI
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Variable	M	SD		M	SD	Mean Difference	L	U	t	df	Sig (2-tailed)
Scores	6.52	2.16		18.78	1.25	12.26	-12.56	-11.95	-78.678	183	.000*

Table 10 shows the significant difference between the level of learners' engagement in terms of their formative and summative tests.

The mean score for the Formative test is 6.52, while the mean score for the Summative test is 18.78. This indicates a substantial difference in average scores between the two types of assessments. The mean difference of 12.26 suggests that, on average, learners scored significantly higher on the Summative test compared to the Formative test. The p-value of .000 ($p < .05$) indicates a highly significant difference between the engagement levels measured by these two types of tests.

4. Conclusion and Recommendations

Based on the findings, the following conclusions were drawn:

There is a significant difference in the level of learners' engagement, specifically in cognitive engagement. Conversely, emotional and social engagement do not exhibit the same level of disparity. Nevertheless, the null hypothesis is rejected. Also, There is a significant difference in learners' academic performance in terms of their formative and summative tests. Digibook has successfully facilitated substantial improvement in their summative test scores when compared to their initial formative test. This noteworthy development highlights Digibook's effectiveness in enhancing learners' overall educational experience and fostering a more successful academic journey. This result has also led to the rejection of the null hypothesis. Lastly, The incorporation of Digibook in teaching selected topics in history has been found to have a significant and positive effect on learners' engagement and academic performance. Digibook has emerged as a valuable tool for teachers pursuing to enhance the overall academic experience of the learners, hence the null hypothesis is rejected.

Based on the findings and conclusions drawn, the following recommendations are hereby proposed:

1. Researchers and other developers of instructional materials like Digibook may incorporate interactive features such as quizzes, puzzles, or mini-games related to the story as these elements not only enhance the students' cognitive engagement but also foster social interaction when shared with friends and family.

2. Instructional materials like Digibook may be written in a more concise form for attention retention and focus. Writing a concise story increases the chances of readers staying engaged throughout the narrative and it helps the readers follow the plot and understand characters easily.

3. Teachers and creators of innovative supplemental tools like Digibook may instigate readers to contribute their ideas, illustrations, or endings to the story by including thought-provoking questions or discussion prompts. This fosters a sense of community and shared ownership, promoting emotional and social engagement among readers.

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