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Mobile-Based Microlearning Platforms to Enhance Grade 5 Learners' Comprehension in Araling Panlipunan

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Abstract

Comprehension in social studies is essential for developing critically minded and well-informed citizens, as it enables learners to analyze events, evaluate perspectives, and connect past and present issues in Araling Panlipunan. However, learners often encounter challenges such as limited prior knowledge, unfamiliar terminology, and abstract concepts. Therefore, these difficulties highlight the need for innovative instructional strategies, such as mobile-based microlearning, to enhance learning effectiveness.

In this context, the study examined the effect of integrating mobile-based microlearning platforms on the comprehension of Grade 5 learners in Araling Panlipunan within an English-speaking classroom environment. Specifically, it assessed learners' performance in terms of literal understanding, inferential interpretation, and evaluative reasoning. Moreover, it evaluated the effectiveness of text-based, video-based, audio-based, and gamified microlearning activities in improving comprehension, while also identifying the challenges encountered and proposing enhancement activities.

A descriptive research design was employed, utilizing a comprehension-based assessment and a survey questionnaire as the primary data-gathering instruments. The respondents consisted of 90 out of 116 Grade 5 learners, with the sample size determined using Raosoft. Furthermore, the statistical tools used included percentages, weighted mean, ranking, and paired sample t-tests.

Findings revealed that Grade Five learners showed gaps in literal understanding, inferential interpretation, and evaluative reasoning in the pre-test, indicating the need for structured instructional support. The integration of microlearning activities, such as text-based, video-based, audio-based, and gamified formats, provided meaningful opportunities to enhance these skills. Consequently, post-test results showed significant improvement across all comprehension domains, confirming the effectiveness of mobile-based microlearning. However, despite its benefits, technological issues posed challenges for learners, highlighting the need for user-friendly platforms, improved digital literacy, and access to high-quality instructional content for effective implementation.

The study concluded that mobile-based microlearning platforms significantly enhance learners' comprehension in Araling Panlipunan and serve as an effective instructional strategy. With this, enhanced microlearning activities were proposed to further improve students' engagement, understanding, and retention of lessons through accessible and interactive learning experiences.

Keywords: *microlearning activities, comprehension skills, literal understanding, inferential interpretation, evaluative reasoning*

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Introduction

Comprehension in social studies is essential for developing critically-minded, well-informed, and proactive citizens. During the elementary stage, comprehension transcends rote learning of concepts and facts. Instead, students evaluate historical and sociological events from various viewpoints, analyze cause-and-effect relationships, and assess sources in subjects like Araling Panlipunan. Improved comprehension skills help learners develop rational perspectives on social concerns, foster empathetic attitudes, and establish meaningful connections between past and current occurrences. However, lack of prior knowledge or unfamiliar terms, together with the abstraction of some topics, poses a challenge to understanding in most learners. Therefore, it is important that there be new teaching methods, like microlearning using mobile phones, to help make the learning process more effective for the learners.

Furthermore, the learners of Araling Panlipunan must be able to understand not only the factual information from history but also the civics, analyze the problems within society, and relate the events of the past to today's world. Given that the learners have to deal with content in a foreign language as well, achieving these goals becomes even more difficult in English-medium classes, resulting in a lack of interest and retention of information. Additionally, Langcuyan, Lopez, & Mendez (2024) claim that teaching methods and reading comprehension skills play a crucial role in comprehending the subject matter.

In addition, despite the attempt of Araling Panlipunan to instill a national consciousness, cultural sensitivity, and history, the learner finds it difficult to comprehend the lessons since they lack experience with academic Filipino. It is hard for the learners to comprehend the important concepts, vocabulary, and literature because of their limited experience with Filipino language, where they only get to learn Filipino and Araling Panlipunan. Due to the high level of English usage among learners in class, the problem being addressed by this study is the challenge faced by learners to comprehend Araling Panlipunan despite its teaching in Filipino.

Moreover, according to the 2019 SEA-PLM figures, less than 10% of Filipino fifth graders attained the minimum competency level of Southeast Asia in their reading skills upon completing primary education. According to PISA 2022 data, showing that the country scored 77th among 81 countries in reading, and only 24% of learners attained Level 2 proficiency, meaning they are able to comprehend simple texts but cannot make connections or draw interpretations, suggesting a widespread problem of comprehension that directly affects students' ability to engage with content-based subjects like Araling Panlipunan.

Similarly, the issue continues to affect high school-level education, where it should be addressed much more effectively. The 2024 FLEMMS report indicated that there are 18.9 million high schoolers in the Philippines who are functionally illiterate since they do not have sufficient understanding and interpretation skills of written information needed to solve mathematical problems and read directions. Thus, the learners are advancing within the system without learning essential skills like reading critically and analytically, which will allow them to grasp matters related to history, civics, and the topics taught in Araling Panlipunan. The issue is not only present at the Grade 5 level but throughout the country in terms of civic engagement

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and work opportunities.

As such, in a study done in 2024 in the Philippines by Langcuyan et al., learners in Grade 5 face comprehension problems in Araling Panlipunan due to the language barrier since the subject matter is in English and delivered through traditional classroom pedagogies. The use of differentiated instruction strategies was applied in a public school in Davao Oriental, where it was noted that the academic performance of the students improved due to differentiated instruction strategies since they were able to comprehend better. The results indicate that students become more engaged and can easily comprehend complicated civic and historical concepts depending on the method used in training.

Indeed, the researchers found out that the environment in which the English language is spoken creates impediments for Grade 5 students' confidence and fluency in academic Filipino and renders it difficult for them to grasp the lessons taught in Araling Panlipunan. In support of the above statement, recent assessment tests made regarding the MTB-MLE Program indicated that even though early learners would benefit if lessons are imparted through their native tongue, there will be serious issues as they start learning Filipino and English later on. This is particularly true with content-based lessons such as Araling Panlipunan, wherein learners struggle with comprehension of academic terminologies and concepts. As noted, students find it difficult to understand the lessons taught to them when they change languages in the process, leading to limited comprehension of the lessons as a whole.

The former studies mentioned served as the basis for the creation of the researcher's technology-based approach aimed at enhancing the literal, inferential, and evaluative understanding skills of Grade 5 students enrolled in Araling Panlipunan in the year 2025-2026. Although immersed in an educational setting where English is predominantly used, this study seeks to explore the potential of mobile microlearning in helping learners make sense of Filipino language materials.

Further, this research contributes to the modern-day trends in education involving blending and digitization, especially those being pursued by ICT integration projects initiated by the Department of Education. It is cost-effective, accessible, and fits into the daily routine of using digital technology among students. More importantly, microlearning through mobile phones helps learners communicate despite the barriers created by languages.

Conclusively, this research highlights ways in which grade five learners from Princeton Science School, Home of Young Achievers, in Araling Panlipunan could improve their comprehension skills through the integration of mobile-based microlearning tools. Addressing the gap between language acquisition and comprehension, the research provides a valuable contribution to education practice. Moreover, it aims to provide appropriate techniques for other institutions facing similar language challenges.

Statement of the problem

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This study aimed to examine the effect of integrating mobile-based microlearning platforms on the comprehension of Grade 5 learners in Araling Panlipunan within an English-speaking classroom context.

Specifically, it sought to answer the following questions:

1. How may the performance of Grade 5 learners in a comprehension-based assessment in Araling Panlipunan be described in terms of:
    1.1 literal understanding;
    1.2 inferential interpretation; and
    1.3 evaluative reasoning?
2. How effective are the following mobile-based microlearning platforms in developing learners' comprehension in Araling Panlipunan:
    2.1 text-based activities;
    2.2 video-based activities;
    2.3 audio-based activities; and
    2.4 gamified activities?
3. To what extent do mobile-based microlearning activities improve learners' comprehension in Araling Panlipunan in terms of:
    3.1 literal understanding;
    3.2 inferential reasoning; and
    3.3 evaluative thinking?
4. What challenges are encountered in integrating mobile-based microlearning in teaching Araling Panlipunan?
5. Based on the findings, what enhanced mobile-based microlearning activities may be proposed to strengthen learners' comprehension in Araling Panlipunan?

Materials and Methods

Research Design

The study employed a descriptive research design to be able to fully describe, analyze, and explain the comprehension skills of Grade 5 learners in Araling Panlipunan, particularly on integrating mobile microlearning exercises. This kind of design was considered appropriate because it allows the researcher to collect, analyze, and present accurate information that describes and reveals the current status of student comprehension without manipulating any variables. Describing the current situations, trends, and patterns, especially in relation to the use of mobile microlearning in an English-language setting. This helped the researcher to observe the behavior and dynamics of instruction that occurred in mobile learning, as well as the students' performance through their test scores.

Participants

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The respondents of this study consist of Grade 5 learners from Princeton Science School – Home of Young Achievers, with a total population of 116 students. Using the Raosoft sample size calculator, the required sample size was determined to be 90 respondents. These respondents was proportionally selected from four sections, with 22 learners drawn from each of two sections and 23 learners from each of the remaining two sections.

Instruments

The researchers utilized a self-constructed survey questionnaire and a comprehension-based assessment to gather the necessary data. The comprehension-based assessment consisted of multiple-choice items aligned with the fourth quarter learning competencies in Araling Panlipunan 5. A total of fifteen (15) items were developed for each variable.

Similarly, the self-constructed survey questionnaire included items designed to determine the effectiveness of mobile-based microlearning activities in enhancing learners' comprehension, as well as the challenges encountered in integrating mobile-based microlearning in Araling Panlipunan classes. Ten (10) items were constructed for each variable.

Procedure:

The researcher submitted a formal request to the principal of Princeton Science School – Home of Young Achievers to conduct the study among Grade 5 learners. Upon approval, informed consent forms were distributed to parents or guardians, and their purpose was clearly explained to the respondents.

The study was carried out in three phases: a pre-test using a comprehension-based assessment, a four-week mobile-based microlearning intervention, and a post-test to assess improvement. Subsequently, survey questionnaires were administered, with the purpose of the study explained to all participants.

Confidentiality of responses was strictly maintained, and all data were securely handled. The researcher then systematically checked, collated, tallied, interpreted, and analyzed the collected data.

Data Analysis

The collected data were tabulated, analyzed, and interpreted using appropriate statistical tools. Percentage was used to determine the proportion of learners across different levels of literal, inferential, and evaluative comprehension. Weighted mean was employed to assess the effectiveness of text-based, audio-based, video-based, and gamified microlearning activities, as well as the challenges encountered in their implementation. Ranking was utilized to identify the relative importance of each item based on mean scores, highlighting the most effective and challenging aspects of the intervention. Furthermore, a paired sample t-test was applied to

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determine whether there was a significant difference between the pre-test and post-test scores, thereby evaluating the effectiveness of the mobile-based microlearning activities.

Results and Discussion

1. Level of Performance in a Comprehension-Based-Assessment in Araling Panlipunan

Table 1
Level of Performance of Grade 5 learners Relevant to Comprehension-Based Assessment Pre-Test Result

Type of Comprehension	Mean Score	Percentage Score (%)	Descriptive Interpretation
Literal understanding	8.72	58.15%	Needs Improvement
Inferential interpretation	10.44	69.63%	Needs Improvement
Evaluative reasoning	10.54	70.30%	Needs Improvement
Overall	**9.90**	**66.02%**	Needs Improvement

Table 1 presents the pre-test results of Grade 5 learners in the comprehension-based assessment in Araling Panlipunan, categorized into literal understanding, inferential interpretation, and evaluative reasoning. The learners obtained an overall mean score of 9.90 (66.02%), verbally interpreted as "Needs Improvement," indicating difficulty in achieving the required higher-order thinking skills in understanding Araling Panlipunan concepts.

Additionally, the similar scores across all categories suggest that comprehension difficulties are widespread rather than skill-specific, indicating a general weakness in reading comprehension. Learners demonstrated varying levels of difficulty across literal, inferential, and evaluative comprehension, reinforcing the presence of broad comprehension challenges, as Caro et al. (2025). This highlights the need for a systematic approach that develops comprehension across multiple levels, as focusing on a single skill area may not effectively improve overall reading ability.

2. Effectiveness of Mobile-Based Microlearning Platforms in Developing Comprehension in Araling Panlipunan

2.1. Text-Based Microlearning Activities. Table 2 summarizes the effectiveness of text-based microlearning activities in developing Grade 5 learners' comprehension in Araling Panlipunan.

Table 2
Effectiveness of Text-Based Microlearning Activities in Developing Comprehension in Araling Panlipunan

Indicators	Weighted mean	Verbal Interpretation	Rank
1. I can understand the lesson better through short texts.	3.51	Strongly Agree	6

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2. I could easily remember facts and dates from the text-based activities.	3.30	Agree	9
3. I found it easier to take notes while reading short texts.	3.71	Strongly Agree	3
4. I learned new terms and vocabulary through the short texts.	3.44	Agree	8
5. I understood the main idea of the lesson after reading the text.	3.46	Agree	7
6. I prefer reading short texts on my device rather than a textbook.	3.11	Agree	10
7. I liked that I could re-read the text easily when I didn't understand something.	4.00	Strongly Agree	1
8. The short texts helped me study at my own pace.	3.63	Strongly Agree	4
9. The reading tasks were easy to follow and understand.	3.72	Strongly Agree	2
10. The texts helped me connect the topic to real-life situations.	3.59	Strongly Agree	5
Composite Mean	**3.55**	**Strongly Agree**	

Strongly Agree – 3.50 – 4.00 Agree – 2.50 – 3.49 Disagree – 1.50 – 2.49 Strongly Disagree – 1.00 – 1.49

Table 2 shows that text-based microlearning activities are effective in improving learners' comprehension in Araling Panlipunan. The composite mean of 3.55 ("Strongly Agree") indicates that students view these activities as highly beneficial, suggesting that structured text-based microlearning supports meaningful learning.

As seen in the data, it becomes apparent that short texts contribute to teaching and learning as they are clear, engaging, and easy to process. Learners value the ability to re-read content, helping them better understand difficult parts at their own pace. They also find tasks easier to follow, allowing greater focus on content. Additionally, short texts simplify note-taking, promoting active learning and better organization of information.

However, a challenge in text-based microlearning is learners' difficulty in memorizing facts and dates (3.3), indicating that while understanding is achieved, retention remains limited. This highlights the need for strategies such as review exercises, repetition, practice tests, and visual aids to strengthen memory. Additionally, the low preference for reading on devices (3.11) suggests that some learners struggle with digital formats or prefer printed materials, emphasizing the importance of a blended learning approach.

The findings are supported by Diaz et al. (2021), who found that microlearning improved vocabulary retention and inference skills through short text-based activities and interactive questions, helping learners stay focused and enhance comprehension.

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2.2. Video-Based Microlearning Activities. Table 3 summarizes the effectiveness of video-based microlearning activities in developing Grade 5 learners' comprehension in Araling Panlipunan.

Table 3

Effectiveness of Video-Based Microlearning Activities in Developing Comprehension in Araling Panlipunan

Indicators	Weighted Mean	Verbal Interpretation	Ranking
1. I could understand the emotion or tone of the speaker better through video.	3.13	Agree	10
2. I was able to understand the topic better with the help of visuals.	3.63	Strongly Agree	2
3. I paid more attention when watching the lesson videos.	3.50	Strongly Agree	5
4. The videos explained the lesson clearly and simply.	3.42	Agree	7.5
5. I remembered the lessons better after watching the video.	3.43	Agree	6
6. I enjoy learning through short lesson videos.	3.42	Agree	7.5
7. I was able to pause and replay the videos to understand better.	3.73	Strongly Agree	1
8. The videos helped me see how the lesson applies to real life.	3.57	Strongly Agree	3
9. The videos made the lessons more interesting.	3.54	Strongly Agree	4
10. Watching videos helped me stay motivated to finish the lesson.	3.42	Agree	7.5
Composite Mean	**3.48**	**Agree**	

Strongly Agree – 3.50 – 4.00 Agree – 2.50 – 3.49 Disagree – 1.50 – 2.49 Strongly Disagree – 1.00 – 1.49

Table 3 shows that video-based microlearning activities are effective in developing learners' comprehension in Araling Panlipunan. The composite mean of 3.48 ("Agree") indicates that students generally perceive these activities as helpful in enhancing their comprehension skills.

The data show that learners strongly value the ability to control video-based microlearning through pausing, replaying, and reviewing, which enhances comprehension. Visual elements help clarify abstract and complex concepts, while real-life contexts make learning more meaningful and applicable. Overall, video-based microlearning is effective due to its flexibility, visual support, and practical relevance. These findings are supported by Dipon and Dio (2024), whose meta-analysis confirmed the positive impact of video-based learning on students' academic performance, particularly in subjects that require strong visual understanding.

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However, while learners find videos engaging, results show weaker agreement in areas such as motivation to complete lessons, clarity of understanding, and retention of information. This suggests the need for additional activities and guided discussions to strengthen comprehension and recall. The lowest-rated indicator also implies that learners may need support in interpreting nonverbal cues and expressing ideas. Overall, teachers can enhance video-based microlearning by incorporating structured guidance and supplementary learning tasks.

2.3. Audio-Based Microlearning Activities. Table 4 summarizes the effectiveness of audio-based microlearning activities in developing Grade 5 learners' comprehension in Araling Panlipunan.

Table 4

Effectiveness of Audio-Based Microlearning Activities in Developing Comprehension in Araling Panlipunan

Indicators	Weighted Mean	Verbal Interpretation	Ranking
1. I understood how the words were pronounced by listening.	3.38	Agree	3
2. I can follow the lesson better when it is explained through audio.	2.87	Agree	10
3. I learned new ideas by just listening to the audio.	3.16	Agree	6
4. I liked that I could listen to the lesson while doing other tasks.	3.20	Agree	5
5. I understood the lesson even without reading, just by listening.	3.10	Agree	7
6. I enjoy listening to lesson recordings during study time.	3.07	Agree	8
7. Listening to the lesson helped me focus more.	3.44	Agree	2
8. The audio helped me imagine the lesson more clearly in my mind.	3.46	Agree	1
9. The audio recordings helped me understand the lesson.	3.24	Agree	4
10. Audio lessons helped me feel less distracted than reading or watching.	2.92	Agree	9
Composite Mean	**3.18**	**Agree**	

Strongly Agree – 3.50 – 4.00 Agree – 2.50 – 3.49 Disagree – 1.50 – 2.49 Strongly Disagree – 1.00 – 1.49

Table 4 shows that audio-based microlearning activities are effective in developing learners' comprehension in Araling Panlipunan. The composite mean of 3.18 ("Agree") indicates that students find audio materials helpful, particularly in enhancing understanding, focus, and imagination.

The data show that audio-based microlearning helps learners visualize concepts, improve

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focus, and enhance pronunciation and language comprehension, leading to deeper and more meaningful understanding. It promotes attentiveness, mental clarity, and the ability to process information effectively.

The findings are supported by Gonulal (2022) and Triana et al. (2024), who found that audio podcasts improve listening skills, attention, and language comprehension. Repeated listening enhances understanding of language patterns and sentence processing, reinforcing the effectiveness of audio-based learning in improving pronunciation, comprehension, and overall understanding through listening.

However, lower-ranked indicators reveal that not all learners feel less distracted or can easily follow lessons through audio alone. This suggests that audio-based learning has limitations and should be supported with supplementary materials and varied teaching strategies to ensure clearer understanding and better learning outcomes

2.4. Gamified Microlearning Activities. Table 4 summarizes the effectiveness of gamified microlearning activities in developing Grade 5 learners' comprehension in Araling Panlipunan.

Table 5

Effectiveness of Gamified Microlearning Activities in Developing Comprehension in Araling Panlipunan

Indicators	Weighted Mean	Verbal Interpretation	Ranking
1. I can understand the topic better through the games.	3.31	Agree	9
2. I became more interested in the lesson because it was like a game.	3.61	Strongly Agree	1
3. I enjoyed answering the lesson through interactive games.	3.48	Agree	6
4. I remembered more facts when the lesson was presented as a game.	3.28	Agree	10
5. The game-like activities helped me focus on the lesson.	3.33	Agree	8
6. I became more curious about the topic after playing the learning game.	3.56	Strongly Agree	3
7. I felt excited to complete tasks because of the game format.	3.51	Strongly Agree	5
8. I became more confident after completing the game-based tasks.	3.60	Strongly Agree	2
9. I worked better with my classmates when the lesson was gamified.	3.36	Agree	7
10. The games helped me learn how to manage my time while completing tasks.	3.53	Strongly Agree	4
Composite Mean	**3.46**	**Agree**	

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Strongly Agree – 3.50 – 4.00 Agree – 2.50 – 3.49 Disagree – 1.50 – 2.49 Strongly Disagree – 1.00 – 1.49

Table 5 shows that gamified microlearning activities are effective in developing learners' comprehension in Araling Panlipunan. The composite mean of 3.46 ("Agree") indicates that learners perceive these activities positively, highlighting their benefits in enhancing engagement, motivation, and overall learning experience.

The data show that gamified microlearning increases learners' interest, confidence, curiosity, and intrinsic motivation, leading to greater engagement. Immediate feedback also boosts confidence and creates a positive, stimulating environment that encourages active participation.

The findings are supported by Savithri et al. (2024), who found that gamification enhances microlearning by increasing motivation, engagement, and knowledge retention through elements like points, badges, and feedback. Similarly, Ramírez Ruiz et al. (2024) emphasized that gamification improves students' behavioral, emotional, and academic engagement, particularly at the primary level.

However, lower-ranked indicators suggest that gamified learning alone may not fully support comprehension and retention, as learners may focus more on game mechanics than content. This highlights the need for additional instructional support and alignment of game elements with learning objectives to ensure deeper understanding and recall.

3. Extent of Improvement in Learners' Comprehension through Mobile-Based Microlearning in Araling Panlipunan

Table 6
Extent of Improvement in Learners' Comprehension through Mobile-Based Microlearning

Comprehension Level	Pre-test Mean	Post-test Mean	Mean Gain	% Improvement	t-value	p-value	Interpretation
Literal understanding	8.72	13.31	4.59	30.6	8.03	0.000	Significant
Inferential Reasoning	10.44	13.08	2.64	17.6	4.92	0.000	Significant
Evaluative Thinking	10.54	12.87	2.33	15.53	3.95	0.000	Significant
Overall	**9.90**	**13.09**	**3.19**	**21.24**	**5.63**	**0.000**	**Significant**

The data in table 6 revealed a significant improvement in learners' literal, inferential, and evaluative comprehension through mobile-based microlearning, as indicated by a p-value of 0.000. The increase in mean scores from 9.90 (pre-test) to 13.09 (post-test), with a 21.24% gain, demonstrates the effectiveness of the intervention. These results suggest that using mobile

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devices to deliver short, focused content enhances understanding, retention, and overall comprehension.

The findings suggest that mobile-based microlearning is an effective instructional approach for enhancing learners' comprehension across multiple cognitive levels, including literal, inferential, and evaluative thinking. It supports the development of both lower- and higher-order cognitive skills. Therefore, the study provides strong empirical evidence for integrating mobile-based microlearning into teaching practices, given its proven effectiveness in improving learners' comprehension outcomes.

The findings are supported by Rejas et al. (2024), who found that mobile learning enhances achievement and cognitive skills, particularly comprehension and critical thinking. Similarly, Yuca and Dabaj (2025) showed that mobile-based microlearning improves cognitive efficiency and supports effective knowledge acquisition through short, focused content.

4. Challenges Encountered in Integrating Mobile-Based Microlearning in Araling Panlipunan

Table 7

Challenges Encountered in Integrating Mobile-Based Microlearning

Indicators	Weighted Mean	Verbal Interpretation	Ranking
1. I sometimes have trouble using a mobile device for my lessons.	2.67	Agree	3
2. I don't usually review or reflect on my answers in mobile activities.	2.49	Disagree	9
3. I get distracted easily when using a phone or tablet for learning.	2.54	Agree	6.5
4. It is hard to study when the screen is too small or unclear.	2.98	Agree	2
5. I do not always understand the lesson without help from the teacher.	2.58	Agree	5
6. I share a device with others, so I cannot always study when I want to.	2.00	Disagree	10
7. I feel tired or sleepy when I study using my mobile device.	2.50	Agree	8
8. I find it difficult to stay disciplined without a teacher watching.	2.59	Agree	4
9. I find it harder to understand lessons by just watching or reading on a phone.	2.54	Agree	6.5
10. Poor internet connection affects my learning.	3.12	Agree	1
Composite Mean	**2.60**	**Agree**	

Strongly Agree – 3.50 – 4.00 Agree – 2.50 – 3.49 Disagree – 1.50 – 2.49 Strongly Disagree – 1.00 – 1.49

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Table 7 presents the challenges encountered in integrating Mobile-Based Microlearning in Araling Panlipunan. The composite mean of 3.46 corresponds to a verbal interpretation of "Agree", indicating that learners experience various challenges in integrating mobile-based microlearning. This also implies that mobile-based microlearning might be beneficial, but it still requires improvements in terms of technical support, instructional design, and learner support systems to ensure a more effective learning experience for learners.

The data show that key challenges in mobile-based microlearning include poor internet connection, small screens, and difficulty in device use, highlighting issues in usability, accessibility, and digital literacy that may affect comprehension and focus. This suggests the need for user-friendly platforms, improved learning materials, and support in developing learners' digital skills.

The findings are supported by the Organization for Economic Co-operation and Development or OECD (2024), which identified poor or unstable internet connectivity as a major barrier to student engagement and continuity in digital learning. Similarly, Chen et al. (2024) found that mobile device use can disrupt concentration and negatively affect academic performance, highlighting challenges in the effectiveness of mobile-based learning.

However, low ratings on device sharing and lack of reflection indicate that access to devices is generally not a problem and that learners engage in active learning practices. Thus, efforts should focus on improving content quality and using guided feedback and reflective activities to enhance learning outcomes.

5. Proposed enhanced mobile-based microlearning activities to strengthen learners' comprehension in Araling Panlipunan

Enhanced Microlearning Activities

Comprehension	Activities	Objective	Strategies	Persons Involved	Time Frame	Expected Outcome
Literal	Video-Based: "Spot the Fact" Clips	Identify key facts and details in Araling Panlipunan topics	Use short animated videos with pause-and-answer prompts	Teacher, Grade 5 Learners	3–5 minutes per session	Improved recall of basic concepts (Literal comprehension)
	Audio-Based: "Listen and List"	Recall important information from audio narratives	Provide short audio lessons with guided recall questions	Teacher, Learners	3–5 minutes per session	Enhanced listening and memory skills
	Text-Based: "Quick Read	Recognize important	Use short passages	Teacher, Learners	3–5 minutes	Better understanding

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	Cards"	terms and ideas	with highlighted keywords and interactive definitions		per session	of vocabulary and key concepts
	Gamified: "Fact Match Game"	Reinforce factual knowledge	Matching games with instant feedback and scoring	Teacher, Learners	5 minutes per session	Increased engagement and retention of facts
Inferential	Video-Based: "What Happens Next?"	Predict outcomes and infer meaning	Scenario-based videos with prediction pauses	Teacher, Learners	5–7 minutes per session	Improved inferential thinking skills
	Audio-Based: "Clue-Based Listening"	Identify cause-and-effect relationships	Audio clips with embedded guide questions	Teacher, Learners	5 minutes per session	Better ability to interpret information
	Text-Based: "Read Between the Lines"	Draw conclusions from texts	Short readings with inference questions	Teacher, Learners	5–7 minutes per session	Enhanced comprehension beyond literal meaning
	Gamified: "Cause-and-Effect Builder"	Analyze relationships between events	Drag-and-drop sequencing game	Teacher, Learners	5–7 minutes per session	Strengthened analytical skills
Evaluative	Video-Based: "Agree or Disagree?"	Evaluate ideas and form opinions	Interactive videos with opinion polls	Teacher, Learners	5–7 minutes per session	Development of critical thinking
	Audio-Based: "Debate Audio Snippets"	Assess different viewpoints	Present contrasting opinions via audio	Teacher, Learners	5 minutes per session	Improved evaluative listening skills
	Text-Based: "Mini Case Studies"	Make judgments based on scenarios	Provide short cases with reflection questions	Teacher, Learners	7 minutes per session	Enhanced decision-making ability
	Gamified: "Decision-	Apply critical	Role-playing	Teacher, Learners	7 minutes	Improved problem-

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	Making Quest"	thinking in real-life situations	game with branching scenarios		session	solving and evaluative skills

Conclusion

Based on the findings of the study, it was concluded that the performance of Grade Five learners in the comprehension-based assessment in Araling Panlipunan revealed deficiencies in literal understanding, inferential interpretation, and evaluative reasoning, indicating the need for a progressive and constructive instructional approach to improve comprehension skills. It was also concluded that microlearning activities utilizing textual, video, audio, and game-based approaches provided learners with meaningful opportunities to enhance their literal understanding, inferential interpretation, and evaluative reasoning in Araling Panlipunan. Furthermore, the results of the post-test comprehension assessment showed that mobile-based microlearning activities significantly improved learners' literal understanding, inferential reasoning, and evaluative thinking, proving to be an effective and convenient instructional strategy.

However, despite the accessibility of mobile microlearning, learners still encountered technological challenges, highlighting the importance of developing learner-friendly interfaces, strengthening digital literacy, and ensuring high-quality learning content. Overall, the proposed enhanced mobile-based microlearning activities were found to be beneficial in strengthening learners' comprehension in Araling Panlipunan.

Recommendation

Based on the conclusions drawn from the study, several recommendations are hereby presented. School heads may use the findings of the study to effectively monitor learners' comprehension levels in Araling Panlipunan and to support and facilitate the integration of mobile-based microlearning activities in the teaching-learning process. Teachers may utilize the proposed enhanced mobile-based microlearning activities and apply mobile-based strategies in designing diverse learner-centered activities that can help evaluate and improve learners' comprehension levels in Araling Panlipunan.

Moreover, learners are encouraged to actively participate in and show enthusiasm toward mobile-based microlearning activities to further develop their higher-order thinking skills and foster greater personal responsibility in studying. Parents may also play an important role by monitoring their children's progress and encouraging them to utilize mobile-based microlearning activities while helping them develop effective study habits at home. Lastly, future researchers may use the findings of the study as a reference for further research and related studies in the field of mobile-based microlearning and comprehension development.

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