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Development of Mobile Application Utilizing Local History in Teaching Araling Panlipunan

Ledeah R. Baling
Iloilo State University of Fisheries, Sciences, and Technology- Dingle Campus, Philippines
ledsbaling78@gmail.com

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ABSTRACT

This developmental research study, entitled *"Development of a Mobile Application Utilizing Local History in Teaching Araling Panlipunan,"* aimed to design and develop a mobile instructional application integrating local history into the teaching of *Araling Panlipunan 7*. The study employed the ADDIE Model as the development framework. Thirteen (13) experts from public secondary schools in the municipality of Dingle served as validators during the design and development phases. Fifty (50) purposively selected Grade 7 learners participated in the pilot testing conducted during the school year 2022–2023, while forty-five (45) Grade 7 learners during the school year 2025–2026 were administered pretests and posttests to determine the level of significance of the localized mobile application. Findings revealed that the developed localized mobile application received a Very Acceptable (VA) rating for functional suitability, performance efficiency, compatibility, usability, reliability, security, maintainability, format, language, content, and activities or assessments. Furthermore, statistical analysis indicated a significant difference between the pretest and posttest results, demonstrating that learners achieved higher scores after utilizing the E-localized mobile application. The results imply that the developed mobile application effectively enhanced learners' engagement and motivation, improved accessibility and flexibility, and contributed to more personalized learning and assessment experiences.

Keywords: *Mobile application, localized history, Dingle, development, teaching Araling Panlipunan, ADDIE model, pretest, and posttest*

INTRODUCTION

The evolving demands of 21st-century education necessitate the adoption of innovative, inclusive, and technology-driven pedagogical approaches. Educators are increasingly challenged to design learning environments that not only deliver content effectively but also cultivate critical thinking, creativity, and meaningful engagement among learners. In response, contemporary teaching practices have incorporated strategies such as self-directed learning, instructional research, collaborative engagement, and technology integration. These approaches have been found to enhance instructional delivery, strengthen teacher–student relationships, and promote inclusivity in diverse classroom settings, particularly in the teaching of Araling Panlipunan.

Despite these advancements, persistent gaps in student achievement remain evident. National assessment data reveal that the 2018 Philippine National Achievement Test (NAT) yielded a mean percentage score (MPS) of 51.58 in Araling Panlipunan, indicating below-proficiency levels among

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learners. On a global scale, the Philippines ranked among the lowest-performing countries in creative thinking based on the 2022 Programme for International Student Assessment (PISA), with students averaging only 14 points (Chi, 2024). These findings highlight a critical need to re-examine existing instructional approaches and adopt more engaging, learner-centered, and innovative strategies to effectively develop higher-order thinking skills.

The educational disruptions brought about by the COVID-19 pandemic further exposed significant challenges in student engagement, interaction, and access to quality learning experiences. The abrupt transition from traditional face-to-face instruction to remote learning modalities underscored the limitations of conventional teaching methods. Consequently, blended learning approaches have emerged as viable solutions that combine the strengths of in-person instruction with the flexibility and accessibility of digital platforms. Within this context, mobile learning (m-learning) has gained considerable attention as an adaptive and accessible mode of instruction delivery, particularly in resource-limited environments (Villamen et al., 2022).

Mobile applications offer dynamic opportunities to transform traditional learning experiences into interactive and engaging processes. By integrating multimedia elements, gamification, and culturally responsive content, mobile-based instructional materials can enhance learner motivation and comprehension. In the context of Araling Panlipunan, the use of localized content within mobile applications provides a meaningful avenue for contextualized learning. Unlike conventional textbooks, which often present information in static, decontextualized formats, mobile applications can facilitate immersive experiences, such as virtual tours, interactive maps, and simulation-based activities related to local history and heritage. These features not only increase student engagement but also foster a stronger sense of identity, cultural awareness, and community connection among learners.

Furthermore, the development of localized mobile instructional materials supports the principles of inclusive and equitable education. Mobile applications can bridge gaps in access to quality educational resources by providing flexible, cost-efficient, and widely accessible learning platforms. Features such as audio narration, visual aids, and interactive simulations cater to diverse learning styles and abilities, ensuring that learners from various socioeconomic and geographical backgrounds can actively participate in the learning process. Empirical studies have also demonstrated positive outcomes from mobile learning, including improved learner engagement and efficiency compared with traditional modular approaches (Villamen et al., 2022).

At Iloilo State University of Fisheries, Science and Technology, there is a growing need to develop instructional materials that are both technologically innovative and contextually relevant. As future educators and curriculum developers, students and faculty members must be equipped with tools that enhance teaching effectiveness while addressing the diverse needs of learners. Thus, this study aims to develop a localized mobile application as an instructional material for Araling Panlipunan. By integrating technological innovation with culturally relevant local history content, the study seeks to improve learners' understanding, engagement, and appreciation of the subject.

Ultimately, this initiative contributes to the broader goals of improving educational quality and advancing the United Nations Sustainable Development Goals (SDGs), particularly Goal 4, which emphasizes inclusive and equitable quality education and lifelong learning opportunities for all.

This study aimed to develop and evaluate a mobile application-based instructional material for Araling Panlipunan local history. Specifically, it determined teachers' competency levels, identified least mastered competencies, developed appropriate instructional materials, and evaluated the application in terms of software quality standards and instructional content. It also examined differences in learners' pretest and posttest scores and proposed a training enhancement program to support teachers' effective use of the application.

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Framework of the Study

The framework comprised an assessment of AP teachers' competency levels and the most essential learning competencies, which were considered difficult, as inputs. The ADDIE Model application was used as a process to develop the mobile application, utilizing Dingle history and crafting a training enhancement program.

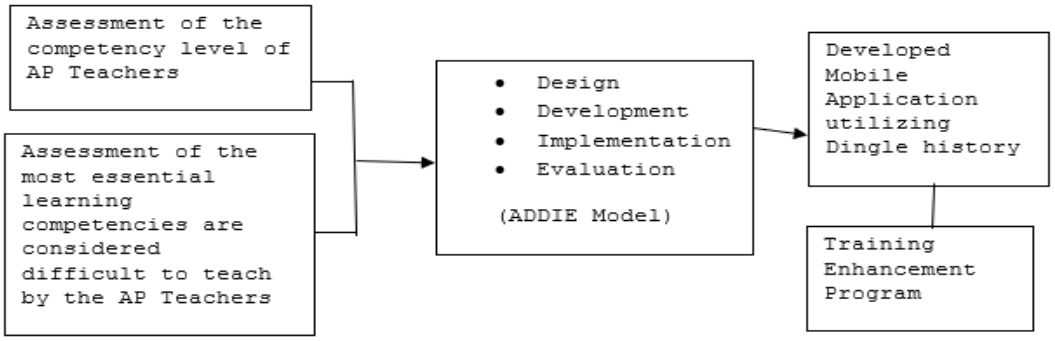

Figure 1. *The interrelationship of the variables using the ADDIE model*

METHODS

Research Design

This study employed a Developmental Research Design, specifically utilizing the ADDIE Model (Analysis, Design, Development, Implementation, and Evaluation) as the framework for the systematic creation and validation of a localized mobile application for *Araling Panlipunan 7*. Developmental research, according to Richey and Klein (2014), focuses on designing, developing, and evaluating instructional programs, processes, and products that meet educational needs.

Research Participants

The participants were the validators, AP teachers, and students purposively selected by the researcher. The study employed Developmental research. Specifically, the Analyze, Design, Develop, Implement, and Evaluate (ADDIE)model. Two forms of evaluation were conducted: Formative Evaluation – Carried out during the design and development phases to ensure quality improvement. Experts and validators provided feedback on content, design, and technical aspects, allowing continuous enhancement. Summative Evaluation – Conducted after implementation to assess the overall acceptability and effectiveness of the app. Teachers and learners rated the app using a standardized evaluation form covering the seven software quality characteristics.

Content Validators of the App

The content validation of the developed localized mobile instructional application involved three groups of participants. During the analysis phase, eight (8) Araling Panlipunan teachers from public secondary schools in Dingle, Iloilo assessed the initial framework and content. In the design and development phase, thirteen (13) experts participated, including one PhD holder, three master teachers (one an ELT specialist), two ICT experts, and seven Araling Panlipunan teachers from selected secondary schools. For the implementation phase, fifty (50) purposively selected Grade 7 learners participated during the School Year 2022–2023. Their involvement ensured the application's content validity, usability, and alignment with learning competencies.

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Research Instrument

The study utilized three primary instruments: The Classroom Observation Tool (COT), structured lesson plans, and an ISO 25010-based evaluation form. The COT was used to assess teachers' instructional practices across teaching strategies, classroom management, assessment, feedback, and reflective practice. The lesson plans ensured the systematic integration of localized content and the developed mobile application. The evaluation form, validated by thirteen experts, measured the application's functionality, performance efficiency, compatibility, usability, reliability, security, and maintainability. All instruments were aligned with the study objectives to ensure validity and consistency in data collection and evaluation.

Data Gathering Procedure

Prior to data collection, approval was obtained from relevant school authorities. Baseline teaching practices were determined using the Classroom Observation Tool (COT). The localized mobile application was implemented among selected Grade 7 learners and subsequently evaluated by teachers and learners using an ISO 25010-based instrument. A pretest was administered to assess prior knowledge, followed by the intervention integrating the mobile application and contextual learning activities, and a posttest to measure learning gains. Collected data were systematically organized, coded, and analyzed using appropriate statistical tools to determine the acceptability and effectiveness of the developed instructional material.

Data Analysis Procedure

Descriptive and inferential statistics were employed to analyze the collected data. Frequency and percentage distributions were used to summarize learners' pretest and posttest scores. Mean scores were computed to determine the level of acceptability of the mobile application and the average performance of learners, while standard deviation measured the consistency of responses. To determine the effectiveness of the intervention, a t-test for dependent samples was applied to examine significant differences between pretest and posttest results. All statistical analyses were conducted to provide an objective basis for evaluating the acceptability and instructional effectiveness of the developed localized mobile application.

RESULTS AND DISCUSSION

Table 1. *Competency level of Junior High School Teachers in Araling Panlipunan*

AP Teachers	Mean Score	Rating
T1	4.25	VS
T2	4.30	VS
T3	4.20	VS
T4	4.00	VS
T5	4.00	VS
T6	4.40	VS
T7	4.10	VS
T8	4.10	VS
Overall Mean	4.17	VS

Scale: 4.5–5.00 Outstanding; 3.5-4.499 Very Satisfactory; 2.5–3.499 Satisfactory; 1.5- 2.499 Unsatisfactory

As shown in Table 1, Junior High School Araling Panlipunan teachers demonstrated a Very Satisfactory competency level (M = 4.17), indicating strong mastery of content, effective pedagogical strategies, and the ability to foster engaging learning environments. Teacher T6 obtained the highest mean (M = 4.40), while T4 and T5 recorded the lowest (M = 4.00), all within the same descriptive category, reflecting minimal variation and consistent professional competence. These findings affirm alignment with

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the Philippine Professional Standards for Teachers (PPST), highlighting teachers' proficiency in content, pedagogy, and learner-centered practices. Moreover, the results support the Analysis and Design phases of the ADDIE model, suggesting readiness for integrating innovative, technology-based instructional materials to enhance teaching effectiveness and learner engagement.

Table 2. *Summary of the Most Essential Learning Competencies of Araling Panlipunan Teachers Based on the Fourth Quarter MELCs*

MELCs-Based Competency (Araling Panlipunan 7 – Fourth Quarter)	Mean	Description	Interpretation
1. Naiuugnay ang mga pangyayari sa lokal na kasaysayan sa mga kaganapan sa pambansang kasaysayan. (Links local historical events to national history.)	4.50	Very Satisfactory	Highly Mastered
2. Nasusuri ang mga pagbabago sa lipunan at kabuhayan sa panahon ng mga Espanyol at Amerikano. (Analyzes social and economic changes during the colonial period.)	4.42	Very Satisfactory	Highly Mastered
3. Naipaliliwanag ang mga salik na nagbunsod sa pag-usbong ng nasyonalismong Pilipino. (Explains the factors that led to the rise of Filipino nationalism.)	4.30	Very Satisfactory	Highly Mastered
4. Naisasalin sa gawaing pampagtuturo ang lokal na kasaysayan gamit ang teknolohiya at interaktibong kagamitan. (Integrates local history in teaching using technology and interactive tools.)	3.68	Satisfactory	Least Mastered
5. Nakagagawa ng mga gawaing pampagkatuto na nagtatampok sa lokal na pamanang pangkasaysayan at pangkultura. (Creates learning activities that highlight local historical and cultural heritage.)	3.60	Satisfactory	Least Mastered
6. Nakabubuo ng mga materyales na panturo batay sa kontekstong lokal. (Develops localized instructional materials.)	3.55	Satisfactory	Least Mastered

Scale Range	Descriptive Rating	Verbal Interpretation
4.20 –5.00	Very Satisfactory	Highly Mastered
3.40 – 4.19	Satisfactory	Least Mastered
2.60 – 3.39	Fair	Developing Mastery
1.80 – 2.59	Poor	Needs Improvement
1.00 – 1.79	Very Poor	Not Mastered

Table 2 shows that eight Araling Panlipunan teachers identified three least mastered Fourth Quarter MELCs: integrating local history using technology (AP7KSP-IVh-3), developing activities highlighting local heritage (AP7KSP-IVh-4), and producing localized instructional materials (AP7KSP-IVi-2). Although teachers demonstrate overall instructional effectiveness (Galvez, 2024), these findings reveal gaps in contextualization and technology integration. Addressing these competencies is essential to sustaining teaching quality and enhancing learner engagement. In response, a localized mobile application was developed to address these instructional gaps. The application features interactive and contextualized components, including pretests, localized readings, guided activities, and performance-based assessments. Designed for offline access, it supports integrating local history and technology into instruction, thereby enhancing teachers' instructional capabilities, promoting curricular relevance, and improving learner engagement in Araling Panlipunan.

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Instructional Materials developed to address the teaching difficulties of Araling Panlipunan teachers

To address the identified teaching difficulties, the researcher developed a localized mobile application titled *"Development of Mobile Application Utilizing Local History in Teaching Araling Panlipunan."* The application was designed based on the least mastered competencies identified by eight Araling Panlipunan teachers. It features structured components, including competency-based introductions, contextualized content, localized readings, pretests, guided activities, and performance-based assessments. The app is accessible offline, enhancing its usability in varied learning contexts. Consistent with Galvez (2024), the lack of instructional materials remains a significant challenge; thus, the developed application serves as an innovative solution to improve instructional delivery, learner engagement, and contextual understanding of local history.

Evaluation of the Mobile Application in Terms of its Functionality, Suitability, Performance Efficiency, Compatibility, Usability, Reliability, Security, and Maintainability

Table 3A. *Level of Acceptability of the Developed Mobile App from the Evaluation of Teachers*

Evaluation Area Description	Mean	Description
Functionally Suitability	4.70	VA
Performance Efficiency	4.77	VA
Compatibility	4.70	VA
Usability	4.63	VA
Reliability	4.65	VA
Security	4.77	VA
Maintainability	4.71	VA
Overall	4.70	Very Acceptable (VA)

Scale: 3.51–5.00 Very Acceptable (VA) 2.51–3.50 Acceptable (A) 1.51–2.50 Moderately Acceptable (MA) 1.00–1.50 Acceptable (BA)

Table 3.B. *Level of Acceptability of the Developed Mobile App from the Evaluation of Students*

Evaluation Area Description	Mean	Description
Functionally suitability	4.72	VA
Performance efficiency	4.71	VA
Compatibility	4.65	VA
Usability	4.50	VA
Reliability	4.70	VA
Security	4.78	VA
Maintainability	4.79	VA
Overall	4.69	Very Acceptable (VA)

Scale: 3.51–5.00 Very Acceptable (VA) 2.51–3.50 Acceptable (A) 1.51–2.50 Moderately Acceptable (MA) 1.00–1.50 Acceptable (BA)

Tables 3.a and 3b reveal that the localized mobile application was rated Very Acceptable by both experts (M=4.70) and learners (M=4.69) across all ISO 25010 criteria, indicating consistently high evaluations in functionality, efficiency, usability, and reliability. The minimal difference in mean scores reflects strong agreement between validators and end-users, confirming the application's quality and effectiveness. While expert evaluation ensured technical accuracy and instructional soundness, learner feedback highlighted usability and engagement in actual use.

These findings support the importance of iterative evaluation and refinement in educational technology, reinforcing its potential to enhance teaching effectiveness and learner engagement in Araling Panlipunan (Marikyan & Papagiannidis, 2024).

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Evaluation of the experts of the mobile application in terms of its format, language used, content, and activities/assessment

Table 4. *Experts' Evaluation of the mobile application in terms of its format, language used, content, and activities/assessment*

Evaluation Area Description	Mean	Description
Format	4.88	Excellent
Language used	4.65	Excellent
Content	4.83	Excellent
Activities/assessment	4.80	Excellent
Overall	4.79	Excellent

Scale:

4.51-5.00	3.51–4.00	2.51–3.50	1.51–2.50	1.00–1.50
Excellent (E)	Very Satisfactory (VS)	Satisfactory (S)	Fair (F)	Poor (P)

Table 4 indicates that the developed mobile application was rated excellent across all evaluated dimensions, with mean scores of 4.88 for format, 4.65 for language, 4.83 for content, and 4.80 for activities/assessment, resulting in an overall mean of 4.79. These findings demonstrate that the application meets high standards for instructional design, language clarity, content quality, and assessment features. The consistently high ratings affirm its effectiveness as a well-structured and pedagogically sound instructional tool for teaching Araling Panlipunan.

Significant Difference in the Pretest and Posttest Scores of Grade 7 Learners Using the E-localized App

Table 5. *Pretest and Post-test Mean and MPS using the E-mobile app*

Test	Mean	MPS (%)	Variance	SD
Pretest	10.467	23.267	2.733	1.653
Post-test	19.867	44.149	4.400	2.100
Difference	–9.400	–20.882	–1.667	–0.447

Note: SD = Standard Deviation; MPS = Mean Percentage Score

Test	t-value	p-value	Decision	Interpretation
Pretest vs. Posttest	141.00	0.000	Reject Ho	Significant Difference

(Level of significance, $\alpha = 0.05$)

Table 5 shows a substantial improvement in learners' performance following the implementation of the e-localized mobile application, with mean scores increasing from 10.47 to 19.87 and MPS from 23.27% to 44.15%. Although variance and standard deviation slightly increased, indicating varied levels of improvement, overall gains were evident. A t-test for correlated samples revealed a statistically significant difference between pretest and posttest scores ($p < .05$), confirming the effectiveness of the intervention. These findings demonstrate that technology-enhanced, localized instruction significantly improves learner engagement and academic performance in Araling Panlipunan.

Training Enhancement Proposal to Develop Skill in the Use of the e-Localized Application of Araling Panlipunan teachers

The proposed study, *"A Collaborative Mobile Learning Initiative: Utilizing Local History in Teaching Araling Panlipunan,"* aims to enhance learning through mobile technology by providing engaging and accessible instructional materials for learners and educators. The project will develop a mobile application featuring interactive lessons, activities, and assessments aligned with the K–12 curriculum.

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Through systematic design, testing, and refinement, the application ensures usability and instructional effectiveness. This initiative bridges traditional and digital approaches, promoting learner engagement and culturally relevant instruction in Araling Panlipunan.

CONCLUSION

The integration of the Classroom Observation Tool (COT) with lesson plans provided a reliable and objective framework for assessing Araling Panlipunan teachers, effectively identifying strengths and areas for improvement. The identification of least mastered competencies underscored the need for targeted instructional materials, guiding the development of the localized mobile application. High acceptability ratings from experts and learners confirmed the application's quality, usability, and alignment with curriculum standards. Furthermore, significant improvements in learners' performance demonstrated the effectiveness of the approach in enhancing engagement, accessibility, and learning outcomes. Overall, the findings establish the localized mobile application as a valid and effective instructional tool, supporting its adoption and potential expansion into other contexts to promote culturally relevant and technology-integrated education.

Recommendations

In light of the conclusions, it is recommended that teachers utilize the developed localized mobile application as a supplementary instructional tool to enhance learner engagement and cultural appreciation in Araling Panlipunan. School administrators may integrate the application into digital learning initiatives and provide appropriate training to ensure effective implementation. Curriculum developers may use the findings to design similar localized, technology-based instructional materials aligned with DepEd's goals for contextualized and 21st-century learning. ICT developers are encouraged to further improve the application by incorporating offline functionality, gamification, and accessibility features. Future researchers may examine its long-term impact on learners' academic performance, motivation, and cultural identity, as well as its scalability across different grade levels and subject areas.

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