

Interactive Learning E-Book as Supplemental Material for Araling Panlipunan 10

ALVIN P. PANOTES¹, LUIS MANUEL C. PAITA, PHD.², SONIA S. CARBONELL, PHD³
^{1, 2, 3} Mabini Colleges Inc.

Abstract- *The current study assessed the developed interactive e-book as a supplemental material for Grade 10 students in Bagong Silang 1 High School's learning of Araling Panlipunan. The responders were 136 10th grade students who failed the quarterly exams during 1st and 2nd quarter of SY 2022-2023. A pre- test and post test result and evaluation from the Education Program Supervisor (EPS) in Learning Resource Management Division Section (LRMDS), license LRMDS evaluators, master teachers, key teachers in Araling Panlipunan (AP) and Information Communication Technology (ICT) expert evaluated the e-book to assure its quality using the Division LRMDS evaluation tool served as the main data gathering tool. The descriptive-evaluative statistics was used to measure the result of the assessment. While T-test was used to test the significant difference in the pre-test and post-test of grade 10 students after the used interactive E-Book against. It was found out that the top 5 least-mastered competencies during the first and second quarters which were the basis in the developed IEB. Based on the results of the evaluators, it all passed in the four factors or criterion (Intellectual property rights Compliance, Content Quality, Technical Design, and Accuracy and Up-To-Datedness) using the LRMDS evaluation tool. On the other hand, based from the result of the pre-test and post-test, there is an improvement in the acquisition of the least-mastered competencies. 9 out 10 competencies show an increase in their performance. Although there's a minimal increase, it could say that the IEB contributed to its attainment. As well as, it shows that the test of significant difference that there is a significant difference in the pre-test and post-test after using the IEB as supplemental materials. Finally, to ultimately use the developed Interactive E-Book (IEB) as supplemental materials in AP 10, the recommendations of the evaluator were sought by the researcher to further improve the material and its utilization.*

I. INTRODUCTION

Teaching is supposed to be a thought-provoking profession. Passion and devotion are required to carry out the tremendous commission in the vocation. What makes teaching more exciting is not only the large number of students that a teacher encounters on a daily basis in the classroom, but also the many tactics that teachers employ in order to capture students' attention and finally urge them to engage in the teaching-learning process (Alay, 2021).

One of the variables that is thought to make student learning inactive and ineffective is the teacher's find difficulty to catch the students' interest in the lesson. There are times when a lot of visual resources have been used, yet students become distracted or bored with the class. This severely perplexed and concerned instructors, especially in a heterogeneous class with a high prevalence of attention problems. Certainly, many teachers are fatigued by their students' inability to listen and pay attention in class (Zarnigo, 2020).

The previously stated scenario is very apparent in *Araling Panlipunan* classes since the subject deals with intricacies of details and information about everything in history. The study objectives centered on literature, society's culture and heritage, and extensive records of notable individuals who made matchless contributions in both local and worldwide settings. The subject's inherent nature causes students to become bored of listening and, as a result, lose interest in participating. With this, *Araling Panlipunan* teachers were trying hard to find appropriate strategy to increase students' participation level, and oftentimes, pushes themselves to go into other avenue where boredom can be lessened if not totally appeased, and further activate students' enthusiasm to cooperate in the discussions (Bickel, 2018).

According to Guarin et al. (2018), problems emerge in the teaching of *Araling Panlipunan* subjects, such as skill acquisition in a certain topic or session. Instructors in the AP program must be able to teach social studies standards to both students with special needs and students in general education. However, due to the complexity of the subject, there is not a single method, plan, or approach that will do this. The intricacy stems from the diversity of the AP, the diversity of its teachers, the range of learning difficulties that students with AP classrooms experience, and the vast range of variances in the social studies standards themselves. However, general areas of advice can be offered to point teachers in the right direction.

Mastering the learning competencies in *Araling Panlipunan* is expected to contribute to the development of a holistically developed citizen who is aware and knowledgeable of and critically analyzes current social issues and concerns in the local as well as in global level. It is an integral formation among students, whom the government envisions to become citizens who are aware, actively involved in public and civic affairs and contributing to the development of a progressive, just and humane society. This awareness is an enlightened one and to respond ethically and participate actively in the resolution of these issues and concerns (Lorbis, 2019).

Based on the data from the Division Monitoring Evaluation and Assessment (DMEA), 12 students failed during the first quarter of the School Year 2022-23. It was determined that the students failed to complete the first quarter due to a lack of enthusiasm in studying, family problem, and parents' attitude toward education. Interventions such as home visitation and dialogue with parents, frequent communication and encouragement, and remedial classes were done to address the learning gaps.

Similarly, the researcher encountered the same problem his station – Bagong Silang 1 High School (BS1HS). Based on the results of the 2nd quarter SY 2022-23, there were 136 out of 221 or 61.54% of Junior High school students failed in 2nd quarter examination and 80.13% Mean Performance Level in *Araling Panlipunan 10* (SMEA Report 2nd quarter SY 2022-23).

The Department Order No. 39 S. 2012 Policy Guidelines on Addressing Learning Gaps and Implementing a Reading and Writing Program in Secondary Schools Effective School Year (SY) 2012-2013. With this, intervention must be made in order to address the learning gaps. In addition, the approval of the Republic Act (RA) 10533 which is the Enhanced Basic Education Act of 2013 that provides that education should adhere to the standards and principles in developing enhanced basic education curriculum by being contextualized and global as well as by being culture-sensitive. The curriculum should also be flexible enough to enable and allow schools to contextualize and enhance the same based on the respective educational and social contexts. The production and development of locally produced teaching materials shall be encouraged (Tokitsu et al., 2021).

Moreover, teachers in any field of discipline are encouraged to utilize various types of learning materials. For example, an interactive e-book will help the students and teachers to facilitate learning to the students and acquired the specific competencies and skills that they need to achieve and accomplished. With this, the researcher conducts this study with the aim of developing quality assured Interactive E-book in *Araling Panlipunan 10* that would provide activities where competencies are acquired and could be used in the face-to-face classes. Students can learn independently in a more interactive way as they are given more engaging activities. Furthermore, the Interactive E-Book can be an avenue to provide E-Learning materials in teaching.

II. METHODS

This study utilized descriptive- evaluative type of research and employed purposive sampling techniques. It involved the 10 evaluators composed of 1 EPS in LRMDs, 3 Master Teacher, 1 ICT coordinator, 2 License LRMDs evaluator and 3 AP key teachers in the Division of Camarines Norte. However, it should be noted that the researcher was not accommodated by the Education Program Supervisor in AP due to other intervening activity.

In addition, there were 136 grade 10 students who used the Interactive E-Book as supplemental material. The

division LRMS evaluation tool, pre-test and post-test served as the main data gathering tools for this study. The participants were asked to use the IEB as supplemental material for approximately four weeks. The participants took parallel tests before (pre-test) and after (post-test) to see if there was significant difference in their performance.

III. RESULTS AND DISCUSSION

The data gathered by the researcher on the Interactive Learning E-Book as Supplemental Material for *Araling Panlipunan* are presented, analyzed and interpreted in this chapter. Discussions of the

subsequent paragraphs included the least-mastered competencies in AP 10 based on the item analysis during the first and second quarters, the developed interactive E-Book based on the LMC's, the result of the evaluation of the interactive E-Book using the LRMS evaluation tool, results of the significant difference between the pre-test and post-test, and the enhancement that integrated to improve the interactive E-Book in AP based on the recommendations of the evaluators and respondents.

The Least-Mastered Competencies (LMC's) in *Araling Panlipunan 10*

Table 1
*Least-Mastered Competencies in AP 10 during
the First Quarter SY 2022-23*
N=221

Least Mastered/Learned Competencies	F	%	Rank
Naipaliliwanag ang konsepto ng Kontemporaryong Isyu AP10PKIIa-1	201	90.95	1
Natutukoy ang mga paghahanda na nararapat na gawin kapag may kalamidad AP101PE-lc-11	188	85.07	2
Napahalagahan ang pagkakaroon ng disiplina at kooperasyon sa pagitan ng mga mamamayan at pamahalaan sa panahon ng kalimidad. – AP101PE-lc-7	180	81.45	3
Nasusuri ang kahalagahan ng Community-Based Disaster Risk Reduction and Management Approach sa pagtugon sa mga hamon at suliraning pangkapaligiran. AP101PE-lc-10	173	78.28	4
Nakabubuo ng konklusyon sa angkop na approach sa pagharap sa suliraning pangkapaligiran AP10PHPIf-g-9	166	75.11	5

Table 1 presents the least-mastered competencies in AP 10 during the first quarter of SY 2022–23. The quarter examination was taken by 221 students. The top least-mastered competency is *Naipaliliwanag ang Kontemporaryong Isyu. AP10PKIIa-1*, with 201 (or 90.95% of the students) responding incorrectly. Second is *Natutukoy ang mga paghahanda na nararapat na gawin kapag may kalamidad AP101PE-lc-11*, 188, or 85.07%, of the students had incorrect answers. Third, *Napahalagahan ang pagkakaroon ng disiplina at kooperasyon sa pagitan ng mga*

mamamayan at pamahalaan sa panahon ng kalimidad. AP101PE-lc-7, with 180, or 81.45%, of the students getting incorrect responses. Then, *Nasusuri ang kahalagahan ng Community-Based Disaster Risk Reduction and Management Approach sa pagtugon sa mga hamon at suliraning pangkapaligiran AP101PE-lc-10*, with 173 (78.28% of respondents) providing wrong responses. Finally, *Nakabubuo ng konklusyon sa angkop na approach sa pagharap sa suliraning pangkapaligiran AP10PHPIf-g-9*, with 166 or 75.11% of the students responding incorrectly.

Table 2
*Least-Mastered Competencies in AP 10 during
 the Second Quarter SY 2022-23*
 N= 221

Least Mastered/Learned Competencies	F	%	Rank
Naipapaliwanag ang konsepto ng globalisasyon.	176	79.64	1
Natataya ang mga perspektibo at epekto ng pag-usbong ng globalisasyon.	173	78.28	2
Nabibigyang halaga ang mga epekto ng migrasyon sa pamilya at bansa dahil sa globalisasyon	168	76.02	3
Naipapaliwanag ang kalagayan, suliranin at pagtugon sa isyu ng globalisasyon.	166	75.11	4
Nasusuri ang dahilan, dimensyon at epekto ng globalisasyon.	166	75.11	5

Meanwhile, Table 2 displays the top 5 competences in AP 10 that were the least-mastered according to the item analysis conducted during the second quarter of SY 2022–23. Again, the test was taken by 221 students in total. With 176 (or 79.64%) incorrect answers from students, the *Naipapaliwanag ang konsepto ng globalisasyon* got the top place. While the *Naipapaliwanag ang kalagayan, suliranin at pagtugon sa isyu ng globalisasyon* at *Nasusuri ang dahilan, dimension at epekto ng globalisasyon* took the lowest spots, with 166 students (or 75.11%) providing wrong answers.

- Developed Interactive E-Book Based on Least Mastered Competencies

After analyzing the students' performance during the 1st and 2nd quarter examination of SY 2022-23 in *Araling Panlipunan 10*, it was found out that there were five least-mastered competencies in each quarter. The students encountered difficulties in acquiring the competencies and therefore these were the basis in formulating and developing an Interactive E-Book in AP 10. The interactive e-book was created using the Kotobee Author app. It refers to the supplemental material in AP that filled in the gaps in learning. It is an electronic document accessed using the Kotobee Reader, an offline program. It is composed of different

part and these are; cover page, introduction (panimula), objectives (layunin), Vocabulary words (talasalitaan), Pre-liminary activity (panimulang pagsubok), Content Discussion (mga gawain sa pagkatuto), Activities (mga pagsasanay), Post-Activity (pangwakas na pagtataya), Additional Activity (karagdagang Gawain), References (sanggunian) and Key to Correction (susi sa pagwawasto). It displays the key components and interactive features found in the finished IEB.

The interactive e-book material was made up of the following features that could be seen in Plate 1. First, the cover page on the left side, which was made in an interesting and engaging manner to grab the student's attention. The graphics were created using the Canva application. The logo and name of the school can be found on the cover, along with additional pictures related to the competencies. It also cited the author's name. It also found the subject and quarter with the least-mastered competencies. On the right side of the plate was a short introduction about the e-book. To get the author's information, a short video clip was available and created using Canva. The references of the images and video can be found at the references section of the IEB.



Araling Panlipunan - Ikasampung Baitang
Unang Markahan - Kahalagahan ng pag-aaral ng mga Kontemporaryang Isyu at mga Suliraning Pangkapaligiran

Ang E-book na ito sa Araling Panlipunan- Kontemporaryang Isyu ay suplementaryong materyal na nakabatay sa Most Essential Learning Competencies(MELCs) na magagamit ng mag-aaral sa ikasampu na baitang upang matutunan ang mga paksa sa Unang Markahan. Ang mga kasanyang matutunan dito ay nakapokus sa pagtugon sa Least Mastered Competencies upang malinang ang mga kasanyang itinakda ng kurikulum.

Ita ay may kalakip na punaang pagsusulat upang masukat ang nalalaman ng mag-aaral na may kinalaman sa inihandang aralin. Mayroon ding babasahin at maikling video na nagtatalakay sa aralin at pagsusulat sa bawat pagtatapos ng aralin upang masukat naman ang natutunan. Upang makita kung tama o mali ang mga sagot sa bawat gawain, makikita rin ang susi sa pagwawaste sa bawat pagseesay at malayang sasagot base sa nauunawaan at opinyon. Inaasahan na magiging matatag ang bawat isa sa paggamit nito.

Manunulat: Alvin P. Panotes
Katobee Author: Alvin P. Panotes
 Teacher 3- Bagong Silang 1HS



Plate 1
 Cover Page

Meanwhile, Plate 2 illustrates the introduction (*panimula*) which describes the brief course introduction. It is presented through a video presentation and pictures created using the Canva program. The objectives (*Layunin*) was the learning competency to be achieved. It is also presented via video presentation accompanied by mellow music and created using Canva. The vocabulary word (*Talasalitaan*) was then used to familiarize students with key vocabulary that will be used throughout the

lecture. Each word must click by the students to see the meaning of the word and the definition of the word will pop-up. Moreover, audio was employed to make it child-friendly and to help people comprehend what needed to be done. Widgets are also used to make it more interactive. This will be used in the entire materials. The students will then have their prior knowledge put to the test by pre-liminary activity (*Panimulang Pagsubok*) or serves as the preliminary activity.

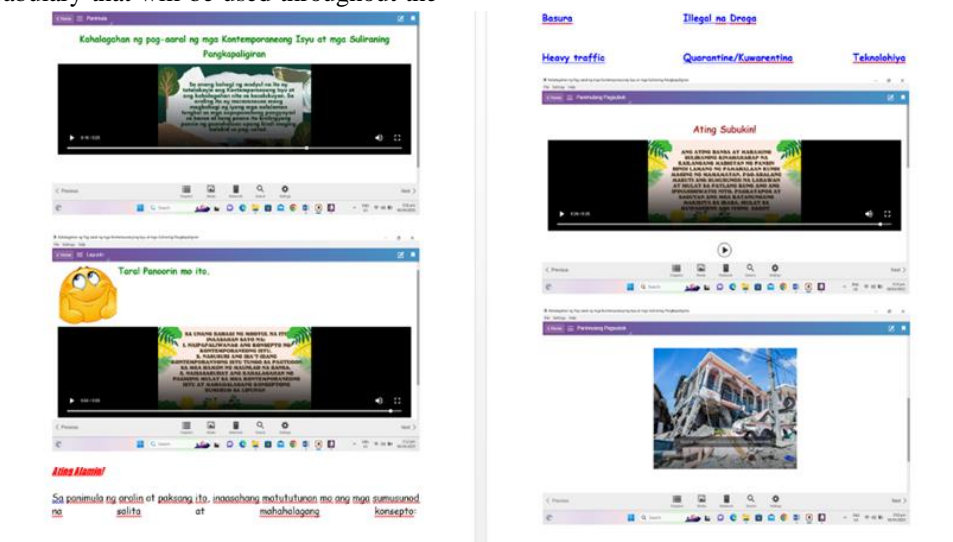


Plate 2

Introduction, Objectives, Vocabulary Words and Pre-liminary Activity

Webster Dictionary, binibigyang kahulugan nito ang isyu bilang mga bagay o paksa na may di pagkakasundo at pagtutunag sa pagitan ng dalawa o higit pang mga partido o panig. Sa dalawang nabanggit na kahulugan, kapwa ang mga ito ay naghihahayag na nakakaraon lamang ng isyu kung may pagtatala ang dalawa o higit pang panig.

Kahirapan ang pinakamatinding suliraning pangkumukunaran ng Pilipinas. Ang kahirapan ay hindi lamang kakulangan sa pagkain, Ito rin ay kakulangan o kasalitan sa iba't ibang aspeto ng buhay na dapat. Imapasahin ng tao tulad ng edukasyon, kalusugan, pagbabay, hustiysa, at iba pa. Ang mobilis na pagtataas ng antas ng teknolohiya ay nagdadulot din ng mga suliraning labas na nakasapekto sa pamumuhay ng tao at kalagayang pangkumukunaran ng bansa.

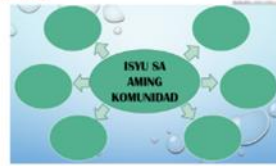


Pagsasanay 1: Manapin mal!

Paruto: Tukuyin ang opat na salitang may kaugnayan sa salitang contemporary issue. Makikita ang mga salita sa kailangang kahon. Samantala, sa kanang bahagi naman makikita ang kahulugan ng mga salitang ito. Ginawa ang word puzzle gamit ang widgets na na maaring masagutan gamit ang iyong cellphone. Tara, simulan mo na!

Pagsasanay 2: Aking Alamin Problema ng aking Komunidad!

Sumawa ng isang survey kung saan atalamin ang mga kasalukuyang problemang ng sariling komunidad. Maaring tanungin ang miyembro ng pamilya, kapitbahay, at opisyal ng barangay. Maglista ng anim na problemang kinakaharap ng inyong komunidad. Isulat sa kuwaderno ang iyong sagot! Gamitin ang concept map sa pagagat sa gawain ito.



Pagsasanay 3: Kabataan: In Action!

Base sa resulta ng iyong survey, bilang isang kabataan ng inyong komunidad ano ang iyong momumungkahing solusyon sa anim na pangunahing problemang kinakaharap ng inyong komunidad? Gamitin ang graphic organizer na makikita sa ibaba at isulat sa kuwaderno ang iyong sagot.

SULIRANIN	MUNGKANG SOLUSYON
1.	
2.	
3.	
4.	
5.	

Plate 3

Content Discussion and Activities

for those activities that couldn't be accommodated using the e-book. The images and pictures were created using PowerPoint and Canva to make it more appealing.

In addition, plate 4 shows the post-activity (Pangwakas na Pagsubok). It was another assessment tool used to gauge students' learning progress. As an additional activity to aid in comprehension and recall, try additional activity (Karagdagang Gawain).

References (Sanggunian) was used as the basis for the instructional resources. The key to correction (Susi sa Pagwawasto), comes last.

Meanwhile, Interactive E-Books have elements with which the students can directly interact. This E-books include the complete text along with all figures and illustrations. It had table of contents that could be clicked to navigate to specific

Pangwakas na Pagsubok

Bosching mabuti ang mga salita at pangunahing na nasa loob na kahon. Tukuyin ang salita at kahulugan nito. Pagawa ang gawain ito sa pamamagitan ng pagpapadil ng dalawang kahon nasa iyang palibot ay makatutagay. Ang dalawang kahon na may pangalang balay ay hiniwalay sa pagpapadil.



KARAGDAGANG GAWAIN

Bahagi na paipagpapadil ang mga pangunahing memomang tulad mo ang pagpapadil sa mga pangunahing sa kanilang lipunan at sa pagpapadil. Para sa buong huling gawain sa aralin na ito, gumamit ng **SLOGAN** na nagpapahayag na maraming bahagi sa bahalaghatin na pagpapadil sa pagpapadil sa kanilang lipunan at sa pagpapadil. Gumamit ng sulirang sa pagpapadil na makikita sa ibaba. Gawain ito sa iyong kuwaderno.

Panuntunan	Panuntunan	Puntos	Nakuhang Puntos
Masamang	Ang gawain ito ay nagpapadil ng lipunan at mabuti na pagpapadil sa pagpapadil.		
Pagpapadil	Orinal ang bawat itatag ng gawain ng kanilang lipunan ng mga salita ay nagpapadil ang lipunan at mabuti.		
Katutagan	Ang mga salita sa hiniwalay.		
Katutagan	Mabuti ang pagpapadil ng lipunan.		

Pinagmulan ng mga Impormasyon

- Alat**
- Analang Pangunahing - Tungkulan na Batang Unang Markahan - Modyul 1: Kahalagahan ng pagpapadil sa mga Kontemporaryong Isyu at mga Suliraning Pangkumukunaran, pahina 4-5
- Larawan**
- <https://rb.gy/fu1j>
 - <https://rb.gy/312b>
 - <https://rb.gy/464r>
 - <https://rb.gy/rv8d>
- Video**
- <https://rb.gy/cwt7>
 - <https://rb.gy/kvoo>

Plate 4

Post-Activity, Additional Activity, References and Key to Correction

chapters or sections. It can highlight the important word or text by popping it up. And it has a video regarding a specific topic that can be watched by the students. Quizzes are more engaging, easy to check and most especially, the results are recorded immediately.

In addition, because it could be opened in offline mode on mobile devices, this interactive E-book is accessible and convenient to carry around due to its portability and light weight. Since eBooks also allow for digital sharing and like of content—which is not possible with paper books—the contents may be readily shared with other students. Because it is incorporated with an augmented three-dimensional visual element that appears on the user's screen, students can clearly view the text and photos. As a result, reading and learning become much more immersive for the user since they may see a 3D representation of the image that is created by a

computer. The fact that the user could alter the screen's brightness based on the time of day and their preferences made the software very user-friendly. Students can listen if they are too busy to read it while doing other tasks thanks to a text-to-speech or read-aloud tool that is also featured. The integrated audio and video clips are also catchy and enjoyable in addition to being instructive.

- The evaluation results of the Interactive E-Book using the LRMDS tool

Table 3 shows the IP rights compliance using the division LRMDS evaluation Tool. Based from the evaluation conducted by the 10 evaluators, they were agreed that the IEB content has no copyright violations and the third-party content (non-original or copyrighted music, songs, sound effects, and texts) was properly attributed with permissions.

Table 3
Intellectual Property Rights Compliance
N=10

Standard/ Criterion Items	Response	Remarks
The content has no copyright violations	Yes	
The third-party content/non-original/copyrighted music, songs, sound effects, and texts are properly attributed with permissions	Yes	
Note: All items must be marked YES to include compliance	Yes	Passed

It appears that all items were marked yes and met the necessary standard. According to the evaluators, the correct citation of the sources, such as text or substance, was approved. It was able to observe that the IEB had a section where the information's source was located. The origins of the photographs or photos that were utilized were shown in the below section. While the audio and video were correctly credited, the sources were visible in the video's lower third and listed in the IEB's end section.

Table 4 depicts the IEB's content quality. Based on LRMDS tool, there are 10 out of 13 standards or

criterion rated 4 by the 10 evaluators. These are the content of the E-Book lesson is suitable to the learner's level of development, the content of the E-book lesson is logically presented and organized the E-book lesson is MELC-based, the content is compliant to the social content guidelines (Refer to document provided), the content enhances the development of desirable Filipino Value/s and trait/s, motivational strategies/adaptive feedback are provided, content provides opportunity for practice and deeping skill/competency and self-

Table 4
Content Quality
N=10

Standard/ Criterion Items	Average
The content of the E-Book lesson is suitable to the learner’s level of development.	4
The content of the E-book lesson is logically presented and organized.	4
The E-book lesson is MELC-based.	4
The contents, materials and activities are contextualized when applicable/necessary.	3.9
The content is compliant to the social content guidelines. (Refer to document provided)	4
The content enhances the development of desirable Filipino Value/s and trait/s.	4
The content allows for review, comparison, and integration with previous lessons/ pre-requisite skills.	3.8
Motivational strategies/adaptive feedback are provided.	4
Content provides opportunity for practice and deeping skill/competency and self-reflection (i.e. journals, portfolios, etc.)	4
The E-Book employs useful measures and information that help the teacher evaluate learner’s progress in mastering the target competencies.	4
The E-Book provides variety of assessment approaches and activities to ensure active engagement of the learners.	3.9
Assessments contain clear instructions to serve as guide on how these will be used.	4
Contents, activities and assessments are aligned with specific objectives.	4
	51.6 or 92.23% - PASSED
Note: Resource must score 44.2 or 85% to pass this criterion	

reflection (i.e. journals, portfolios, etc.), the E-Book employs useful measures and information that help the teacher evaluate learner’s progress in mastering the target competencies, assessments contain clear instructions to serve as guide on how these will be used, and contents, activities and assessments are aligned with specific objectives.

However, there were top 3 least criterion/standard rated by the evaluators. First, the content allows for review, comparison, and integration with previous lessons/ pre-requisite skills with an average of 3.8. It was followed by the contents, materials, and activities being contextualized when applicable or necessary, and the e-book providing a variety of assessment approaches and activities to ensure active engagement of the learners, who received a 3.9 average and were found on the same spot.

Moreover, the IEB received 51.6, or 92.23%, of the criteria. The content quality exam must be passed with a score of 44.2 or 85%. The data revealed that these IEB had passed this factor to be assessed using the LRMDs evaluation tool. Also it means that the IEB as supplemental materials have complied the standard indicators set by the Learning Resources Management and Development Section (LRMDs) for non-print material.

However, the data also imply that some of the evaluators found out that these three criteria must improve. According to evaluator 1, the contextualization and localisation of the course content must be improved. Gathering of data from the local community would be beneficial. Furthermore, proper selection and application of activities incorporated in IEB was also important.

It can be concluded that these three standards got that averages, although some of the content was contextualized but other parts especial in the activities and some materials was not available locally. Since IEB was supplemental material in AP 10 based on the least-mastered competencies, the preliminary activities were not connected to the previous lesson but instead an activity where the student could discover the new concept and could give an idea with regards to the new topic to be discovered. It served as motivation and caught the student’s interest.

Table 5 illustrates the IEB’s Technical Design. There were 10 out of 17 criteria/standards rated 4 by the evaluators. These are the following; the E-Book lesson has the basic working elements/parts such as cover/title page, table of contents and navigation buttons, pacing is effective and appropriate to instructional purposes, Offline/Online functionality, the teacher-presenter uses variation of voices, the voice of the teacher is dynamic and well-modulated,

illustrations are simple and easily recognizable, illustrations clarify and supplement the text, properly labelled or captioned (if applicable), illustrations are realistic with appropriate colors, and elements and design are attractive and appealing.

The data imply that the IEB followed the prescribe indicator. The mechanics in creating an E-Book and the prescribe parts was very evident. It also means that the evaluators were very satisfied to the created IEB as supplemental materials with regards to the ten criteria with regards to technical design. With the help of the new application online, the presentation become more appealing, unique and can catch the learner’s attention. In the of Jmali et al. (2018), E-Books are preferred by the students for its flexibility in searching the content, easy accessibility, enhanced visual appeal and possible multimedia content. It helps the students in viewing animated graphics illustrations.

Table 5
Technical Design
N=10

Standard/ Criterion Items	Average
User’s guide is provided.	1.5
The E-Book lesson has the basic working elements/parts such as cover/title page, table of contents and navigation buttons.	4
Audio components (i.e., narrations, dialogue, music, and sound effects) are appropriate for educational purposes.	3.9
Visual components (i.e., animations, images, and texts) are appropriate for educational purposes.	3.9
Visual and audio components engage the interest of the target learners and enhance the contents.	3.9
Integration of music and sound effects is appropriate and smoothly applied.	3.7
Volume and sound quality are smooth and well-integrated.	3.9
Pacing is effective and appropriate to instructional purposes.	4
Offline/Online functionality.	4
Interoperability/Multi-platform support (iOs/Android/Windows, etc.)	3.8
The teacher-presenter uses variation of voices.	4
The voice of the teacher is dynamic and well-modulated	4
Illustrations are simple and easily recognizable.	4
Illustrations clarify and supplement the text.	4
Properly labelled or captioned (if applicable)	4
Illustrations are realistic with appropriate colors.	4
Elements and design are attractive and appealing.	4

Note: Resource must score 61.2 or 85% to pass this criterion

64.6 OR 95% -
PASSED

In addition, there are four criteria/standards rated 3.9 by the evaluator. These are the following; audio components (i.e., narrations, dialogue, music, and sound effects) are appropriate for educational purposes, visual components (i.e., animations, images, and texts) are appropriate for educational purposes, visual and audio components engage the interest of the target learners and enhance the contents, and volume and sound quality are smooth and well-integrated.

Accordingly, the data imply that the evaluators were satisfied with the four criteria or standards, which focus on the sounds, audio, and visual features of the IEB. This could help the learners and become interested in exploring the IEB. In the study conducted by Potane et al. (2022), e-books can enhance how learners absorb the content due to their added features supporting high interactivity and reachability. It can cater to visual and auditory learners because a video lesson was inserted with narration of the specific content and instruction.

On the other hand, the evaluator assigned an average of 1.5, 3.7 and 3.8 respectively for three criteria or standards. First, user's guide is provided. It was followed by the integration of music and sound effects, which was appropriate and smoothly applied. And lastly, interoperability and multi-platform support (iOS, Android, Windows, etc.).

Meanwhile, there were things to be considered, especially for those criteria that belong to the top three standards, for which the evaluators were less observed. It was admitted by the researcher that the user's data was not incorporated into the IEB, which is why it received a low average. Since this application was new to the respondents, an orientation was conducted for them on how to use the e-book, describe its parts, interface, and functionality, as well as the application that needed to be installed in their respective cellphones.

With regards to the integration of music and sound effects, the researcher based his decision on his taste in music. Music can help the students to understand the concepts but sometimes it is not suited to them.

That's why, there was an option in the IEB where the student could minimize the volume, mute, or unmute the sound of music, depending on what they wanted. And lastly, the IEB was not tried by the researcher on an iOS device because many of the respondents as well as the researcher were using Android phones and Windows.

Furthermore, the IEB earned 63 points, or 93%, on the criteria. The data imply that the IEB met the requirement because the score needed to meet this criterion was 61.2 or 85%. As a consequence, it can be inferred that students will feel at ease and that the environment will be regarded child-friendly in which they may traverse this information via online and offline applications according to evaluator 4. In addition, it is possible to observe the right usage of photos and photographs. It appeals to the students based from. Videos were supplied to help clarify the subject better. Instruction was also shown so that the student could comprehend what to do. While the IEB passes the criterion, it may be found that some criterion need to be modified and upgraded to make it more effective.

Furtherance, the results of the evaluation of the jurors, can be viewed that the IEB as supplemental material have "Passed" the standards in developing learning resources based from the LRMSD evaluation tool in terms of Technical Aspects. This is also mean that the IEB can used by the learners to acquire the least-mastered competencies. In addition, the evaluation of evaluators was seen important in the preparation of the IEB materials and their intelligible and insightful suggestions and recommendations. Aside from scoring, the evaluators have given some suggestions such as; "Follow the font size and highlight the important words"; and "Enhance the colors of the illustration and images" and these were followed in final revision of the IEB materials.

Table 6 displays the Accuracy and Up-To-Datedness. It shows that the IEB received a score of 24 or 100% on the criteria, and that a score of 20.4 or 85% was required to pass this criterion. This means that the 10 evaluators were very satisfied. The data revealed that

this material had no conceptual mistakes, the content was factual and accurate, there were no grammatical problems, the facts and data presented are not older than three years, and there were no typographical or other minor errors. The evaluation had positive feedback in the developed IEB.

Moreover, the developed IEB was carefully planned and followed a series of processes of checking, editing, and revision that were conducted at the school level. It was participated in by the Filipino and Araling Panlipunan teachers, school head, LR coordinator, ICT coordinator, and supervisor-in-charge in the evaluation process. The result of the evaluation was the basis for the division's LRMSD team to assess the IEB. After that, the IEB was also evaluated by the master's teachers, key teachers, LRMSD evaluators, and an ICT expert. It could be said that these are the reasons why the IEB received a perfect score on this criterion.

Table 6
Accuracy and Up-To-Datedness
N=10

Standard/ Criterion Items	Average
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Contains NO conceptual errors.	4
Contents are factual and accurate.	4
Contains NO grammatical errors.	4
Contains NO computational errors.	NA
Information and data provided are not more than 3 years.	4
NO typographical and other minor errors (i.g., inappropriate or unclear illustrations, missing labels, wrong captions, etc.)	4
Note: Resource must score 20.4 or 85% to pass this criterion	20 OR 100% - PASSED

- Result of the Pre-Test and Post-Test of the learners Table 7 presents the result of the pre-test and post test scores of the learner. The percent of the correct responses was identified through the item analysis. There were 136 learners took the examination. The results imply that in post-test, the *Nakabubuo ng konklusyon sa angkop na approach sa pagharap sa suliraning pangkapaligiran APIOPHPLF-g-9* received high increased in the least mastered competencies by the learners with a point of difference of 40.07%.

Table 7
Pre-test and Post-test Scores of the Learners
N=136

Competencies	Percent Responses	Correct Post-Test	Percentage Point Difference Post-Test - Pre-Test
Natutukoy ang mga paghahanda na nararapat na gawin kapag may kalamidad AP101PE-1c-11	75.00	82.72	7.72
Napahalalagan ang pagkakaroon ng disiplina at kooperasyon sa pagitan ng mga mamamayan at pamahalaan sa panahon ng kalimidad. – AP101PE-1c-7	55.88	65.44	9.56

Nasusuri ang kahalagahan ng Community-Based Disaster Risk Reduction and Management Approach sa pagtugon sa mga hamon at suliraning pangkapaligiran . AP101PE-lc-10	34.56	58.46	23.90
Nakabubuo ng konklusyon sa angkop na approach sa pagharap sa suliraning pangkapaligiran AP10PHPIf-g-9	19.49	59.56	40.07
Naipapaliwanag ang konsepto ng globalisasyon.	37.87	59.19	21.32
Natataya ang mga perspektibo at epekto ng pag-usbong ng globalisasyon.	46.32	46.32	0.00
Nabibigyang halaga ang mga epekto ng migrasyon sa pamilya at bansa dahil sa globalisasyon	22.79	50.37	27.57
Naipapaliwanag ang kalagayan, suliranin at pagtugon sa isyu ng globalisasyon	41.91	62.50	20.59
Nasusuri ang dahilan, dimensyon at epekto ng globalisasyon.	42.28	56.99	14.71

It was followed by the following: *Nabibigyang halaga ang epekto ng migrasyon sa pamilya at bansa dahil sa globalisasyon (27.57%), Nasusuri ang kahalagahan ng Community-Based Disaster Risk Reduction and Management Approach sa pagtugon sa hamon at suliraning pangkapaligiran AP101PE-lc-10 (23.90%), Naipapaliwanag ang konsepto ng globalisasyon (21.32%), Naipapaliwanag ang kalagayan, suliranin at pagtugon sa isyu ng globalisasyon (20.59%), Naipapaliwanag ang konsepto ng Kontemporaryong isyu AP10PKlla-1 (15.44%), Nasusuri ang dahilan, dimension at epekto ng globalisasyon (14.71%), Napahahalagahan ang pagkakaroon ng disiplina at kooperasyon sa pagitan ng mga mamamayanat pamahalaan sa panahon ng kalamidad AP101PE-lc-7 (9.56%), Natutukoy ang mga paghahanda na nararapat na gawin kapag may kalamidad AP101PE-lc-11(7.72%) and Natataya ang mga perspektibo at epekto ng pag-usbong ng globalisasyon (0.00%) point of difference respectively.*

Meanwhile, focusing on the improvement of the least-mastered competencies, it shows that the *Nakabubuo ng konklusyon sa angkop na approach sa pagharap sa suliraning pangkapaligiran AP10PHPIf-g-9* received the highest percentage score from 19.49% during the pre-test and 59.56% score during the post-test with 40.07% point of difference. The data shows that there is a minimal increase of the number of learners who mastered this competency. The data revealed that the students are aware of the things that they need to do once a disaster occurs. It can be deduced that the IEB contributed to its minimal improvement.

However, the *Natataya ang mga perspektibo at epekto ng pag-usbong ng globalisasyon* maintained its percentage score of 46.32 from pre-test and post-test with no point of difference, respectively. It implies that there is no increase in the number of learners who mastered this competency. It indicates that the students find difficulty in recognizing the effects of the migration to the family and country as well as perspective due to globalization. It can be concluded

that the IEB was unable to assist the learners in enhancing these competencies. Since the respondents were the struggling learners, this competency requires to remember and analyze the certain situation, it hard for them to acquire this competency. It is highly recommended to think of another strategies in order to acquire these competencies and developed their higher order thinking skills.

Meanwhile, looking at the overall competencies as to its improvement, it can be deduced that 9 out of 10 competencies had a minimal increase in the number of learners who acquired the competencies. It may be implied that the student's learning was somewhat aided by the IEB. It is clear that the students who are learning are struggling ones. From that note, intense focus is required. Allowing the students to utilize the IEB on their own is insufficient. It is strongly advised that the teacher be present to help and support the use of the supplemental material in order to achieve the least-mastered competencies. Meanwhile, the IEB as supplemental material in AP 10 was effective in the students who finds difficulty in catching the lesson or topics but theres a need to improve on its utilization.

- Significant Difference between the Pre-test and Post-test Scores

To test whether there is a significant difference between the pre-test and post-test of scores before and after using the developed Interactive E-Book, test of hypothesis was conducted. As shown in the table 8, the testing of the hypothesis of the pre-test and post-test yielded a t-stat value of 8.79, mean score of 2.176, standard error deviation of .248 and with the 95% confidence interval of difference of 2.666 of lower limits and 1.687 upper limit, which rejected the null hypothesis. Therefore, the data suggest that that there is significant difference between the scores in pre-test and post-test of the students in Araling Panlipunan 10. The findings shows that the result of the pre-test and post-test scores have significant differences. The statistics shows that the post-test scores are higher than pre-test and therefore, there is an improvement in the acquisition of the students to the least-mastered competencies after using the Interactive E-

Table 8

Significant Difference between the Pre-test and Post-test Scores

		Paired Differences							
		Mean	Std. Error Mean	95% Confidence Interval of the Difference		T	df	Si g. (2 - tailed)	C on cl us io n
				Lower	Upper				
Pa ir 1	P R E-	2.176	.248	2.666	1.687	8.79	135	.000	Re jec t

	T E S T - P O S T- T E S T					0* *			H o
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** Difference is statistically significant, $p < .01$

Book. Likewise, the interactive E-Book has significant effects on the enhancement on the mastery of least learned competencies in AP 10.

- Enhancement to Improve the Interactive E-Book in *Araling Panlipunan 10*

The following are the suggestions and recommendations from the evaluators to further improve the Interactive E-Book in AP as supplemental material. First, it is a must to provide a user’s guide. Another is appropriate integration of music and sound effects is highly recommended. The term “Moyul” should replace the term E-Book. After approval, the material should be uploaded to portal (LRMDS).

Moreover, it is recommended to highlight the important concepts in a text to motivate the students to read and learn the topic, print user guide for the students, elements and design should be properly applied, enhance the citation of the sources used within the E-Books, improve the localization of the lesson content, include the references in the final section of the E-Books, video lesson must be prepared by the teacher himself, the material should be tested for iOS, and audio instructions should be labelled to enhance learners experienced in the E-Book.

To ultimately use the developed IEB as supplemental materials in AP 10, the recommendations of the evaluator were sought by the researcher to further improve the material. Evaluator 1 suggested the *user’s guide be provided*. In the revised IEB, the user’s guide is present in the introduction part so that the students

can view it immediately. On the other hand, the evaluator suggested printing the user’s guide. The researcher prepared a hard copy of the user’s guide for the learners.

Moreover, one evaluator recommended to *replace the “modyul” to E-Book and after the approval, upload to portal (LRMDS)*. In the finished E-Book, the term was already changed and after the approval it will be uploaded in the portal. While evaluators 3 and 4 both agreed in highlighting the important concepts in a text to motivate the students to read and learn the topics.

On the other hand, the evaluators 5 and 1 suggested the appropriate integration of music and sound effects, as well as the *elements and design*. Moreover, evaluator 6 suggested *enhancing the citation of the sources used within the e-books, improving the localization of the lesson content, and including the references in the final section of the e-books*. While the evaluators suggested that *IEB should be tested on iOS and audio instructions should be labeled to enhance learner’s experiences in the e-book*, all recommendations by the evaluators were applied to the finished IEB. Lastly, evaluators 7, 8, and 9 requested that the teacher be the one who teach the video lesson.

Accordingly, the study by Anuradha et al. (2018), the disadvantages of e-books one of these is that the e-book as a technological advancement may still be somewhat in its infancy, and there may also be a lack of awareness of the software and hardware that are available for e-books. On that note, the user’s guide and further improvement of the IEB are very essential since today’s development, especially in technology,

is very fast. Orientation is very essential for the users of the e-book so that they have an idea of how to use the application.

CONCLUSION

Based on the findings, the following are the conclusions formulated:

1. It is a must that the students must acquire the competencies. This top 5 least-mastered competencies must address and provide an intervention to cope the specified competencies. Identifying the least-mastered competencies served as the foundation for creating materials to assist students in acquiring certain skills.
2. The developed Interactive E-Book can be a supplemental material to address the least-mastered competencies in AP 10 because of its uniqueness and interactive features that student can engage in learning.
3. A supplemental learning material or other resources must be evaluated by the experts to secure if this IEB followed the Division LRMSD standard and criterion before using by the learners. Following the standards is highly recommended to secure the effectiveness of this material.
4. The Interactive E-Book had a minimal contribution in the acquisition of the competencies. It is effective for the struggling learners but there's a need an extra strategy in utilization of the IEB. Proper consideration of the user's of the IEB is a must. Above all, it could say that IEB could help the students in improving their academic performance.
5. The result of the Pre-Test and Post-Test of the respondents have significant differences. There is an improvement in the learning performance of the students after using the Interactive E-Book.
6. The recommendations and suggestions are very important in improving and enhancing the IEB and other learning resources.

RECOMMENDATIONS

The following are the recommendations based on conclusions:

1. Teachers must adopt the computer-generated item-analysis to easily identify the least-mastered competencies in every quarter.
2. *Araling Panlipunan* teachers should also explore new instructional or supplemental resources in order for students to close learning gaps. It must be addressed in order for teaching and learning to be more meaningful. It is also important that the teachers are aware of the students' attitudes towards learning. Lastly, proper intervention that is suited to the learners is highly recommendable.
3. Future innovations in resolving learning gaps in AP should take into account the students' grade level and generation. It was critical to analyze their strengths and weaknesses in order to create a better and more appropriate material for them.
4. It is important that the IEB must utilize with the guidance of the teacher since it is catering the struggling learners. Teachers must put an extra effort in order to acquire the least-mastered competencies.
5. It is essential for future E-Book authors in AP 10 to follow the guidelines and mechanics of generating an E-Book. These recommendations would assist in producing an output that is tailored to the requirements of the students while still reaching the specified skills.
6. It is essential to conduct a capacity building and workshop for the teachers in developing an Interactive E-Book.
7. This study also recommends that teachers provide materialize E-Book in order to improve or enhance the academic performance of the students in a particular area.
8. This study suggests replicating this content for enrichment as well as for the specific learning competencies that would be suited to the needs and interest of the students. On the other hand, it is highly recommended that in replicating this study, add some variables that did not captures in this study.

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