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Cultural Heritage in Surigao City: Basis for the Development of E-Learning Module

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Abstract

The aim of this study was to evaluate the cultural heritage of Surigao City as a foundation for the development of an e-learning module. The research focused on various aspects of cultural heritage, including natural heritage, intangible heritage, tangible movable heritage, and tangible immovable heritage. With the intention of providing interactive instructional resources, the researcher designed a culturally oriented e-learning module specifically for Social Studies and Social Sciences subjects. To assess the quality of the module, a combination of quantitative and qualitative research designs was employed. Mean and standard deviation were utilized to analyze the data and evaluate the content, instructional, and technical aspects of the e-learning module. Additionally, the Friedman Test was employed to compare the quality of the module based on different factors. The results indicated that the overall quality of the e-learning module was very satisfactory across all criteria, with no significant differences observed among the four factors. The findings of this study highlight the usefulness of the E-Learning Module in teaching and learning, particularly in showcasing the cultural heritage of Surigao City. By utilizing e-learning modules, teachers can create high-quality instructional materials that align with the requirements of the Most Essential Learning Competencies, ensuring an uncompromised learning experience. Furthermore, the incorporation of e-learning modules paves the way for the digitization of resources associated with cultural heritage.

Keywords: C*ultural heritage, natural heritage, intangible heritage, tangible movable heritage, tangible immovable heritage, e-learning module*

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1. Introduction

Cultural heritage as defined by NCCA (2018), refers to the totality of cultural property preserved and developed through time and passed on to posterity. There are categories highlighted as to natural heritage, intangible heritage, tangible movable heritage, and tangible immovable heritage of which has historical, scientific, aesthetic, and social significance.

Based on the cultural heritage categories set by NCCA natural heritage covers natural geological and physiographical, land formations, bodies of water, plants, and animals. Intangible heritage covers oral traditions and expressions, including language, performing arts, social practices, rituals and festive events, knowledge and practices concerning nature and the universe, and traditional craftmanship. Tangible movable heritage includes archaeological objects, ethnographic objects, religious objects, works of industrial/commercial arts, artwork, archival holdings, and natural history specimen. Tangible immovable heritage includes government structures, private built structures and commercial establishments, schools and educational Complexes, schools and educational complexes, hospital and health facilities, churches, temples and places of worship, monuments and markers, sites, heritage houses/vernacular architecture.

The development of e-learning modules for teachers teaching social studies and social sciences as easily available resources in the teaching and learning process was based on the categories of cultural heritage. Teachers, who are at the forefront of the educational system, have several tasks and obligations that must be kept in mind. Given the technology transformation that schools are currently undergoing, the need for creative and novel ways to create instructional resources is critical and inescapable for the best learning experiences and to improve learning outcomes.

Teachers need to learn and adapt as new technologies and tools are constantly being developed; upgrading their skills would help them stay relevant. Long before there was a new coronavirus, we needed to update and train our professional workforce. The situation will be saved, and a better educational foundation will be created by developing a stronger leader, a deeper bench of talent, and a spring of innovation.

The impact brought by COVID-19 pandemic experience had a significant impact on this subject. First, it has completely changed how teaching and learning are approached, utilizing technology and digital advancements in this field for pressing and extreme needs. The second benefit is that it has promoted the rediscovery of minor cultural legacies that are more closely associated with one's own geographical identity, enhancing the connection to the neighborhood. According to Achille et al.'s study from 2022, education is a vital and essential stage since it helps people comprehend the function and significance of cultural property.

To achieve the standards on the Most Essential Learning Competencies, which are non-negotiable as stressed in DepEd policy, considerable production on teaching and learning materials on cultural heritage for Social Studies and Social Sciences has been produced. There are no available e-learning modules for cultural heritage because these teaching resources are so helpful in the classroom.

Surprisingly, the purpose of this research was to close the knowledge gap on how critical it is to understand one's cultural history. By doing so, one can learn more about the evolution of their own family and culture as well as fascinating facts about their own ancestry.

1.1 Objectives

This study assessed the cultural heritage in Surigao City as basis for the development of e-learning module. Specifically, this sought to answer the following questions:

1. Development of e-Learning module according to:
    - 1.1 content,
    - 1.2 instructional,
    - 1.3 technical
    - 1.4 other findings?
2. The significant difference on the quality of e-Learning module among the four group of respondents based on the factors cited in Problem 1?

1.2 Hypothesis

This study was tested through pursuing a 5% margin of error of the following null hypothesis:

H_{01}: There is no significant difference on the quality of e-Learning module based on the factors as to content, instructional, technical, and other findings?

2. Methods

This study used quantitative and qualitative research for investigation. Mean and Standard Deviation were used to determine the quality of e-learning module. Friedman Test was used to compare the quality of e-learning module based on their respective factors. The quality of e-learning module was evaluated according to content, instructional, and technical, and other findings based on adopted tool for Evaluation Rating Sheets for Non-Print Materials from the Department of Education. The respondents of this study were the 10 IT experts, 30 teachers distributed to the participating schools from elementary, Junior High School, and Senior High School coming from the Division of Surigao City.

3. Results and Discussions

The researchers dedicated their efforts to the development of an interactive E-Learning module application, aiming to provide e-learners with a seamless and enjoyable learning experience. Through this innovative approach, learners are able to grasp concepts easily and engage with the material in a fun and interactive manner. The design and development of the E-Learning module is depicted in Figure 1. The application incorporates user-friendly interfaces, engaging multimedia elements, and interactive exercises, fostering an environment where learning becomes both captivating and effective. By harnessing the power of technology and interactive learning methods, the E-Learning module offers a platform that promotes effective knowledge acquisition and encourages learners to actively participate in their educational journey.

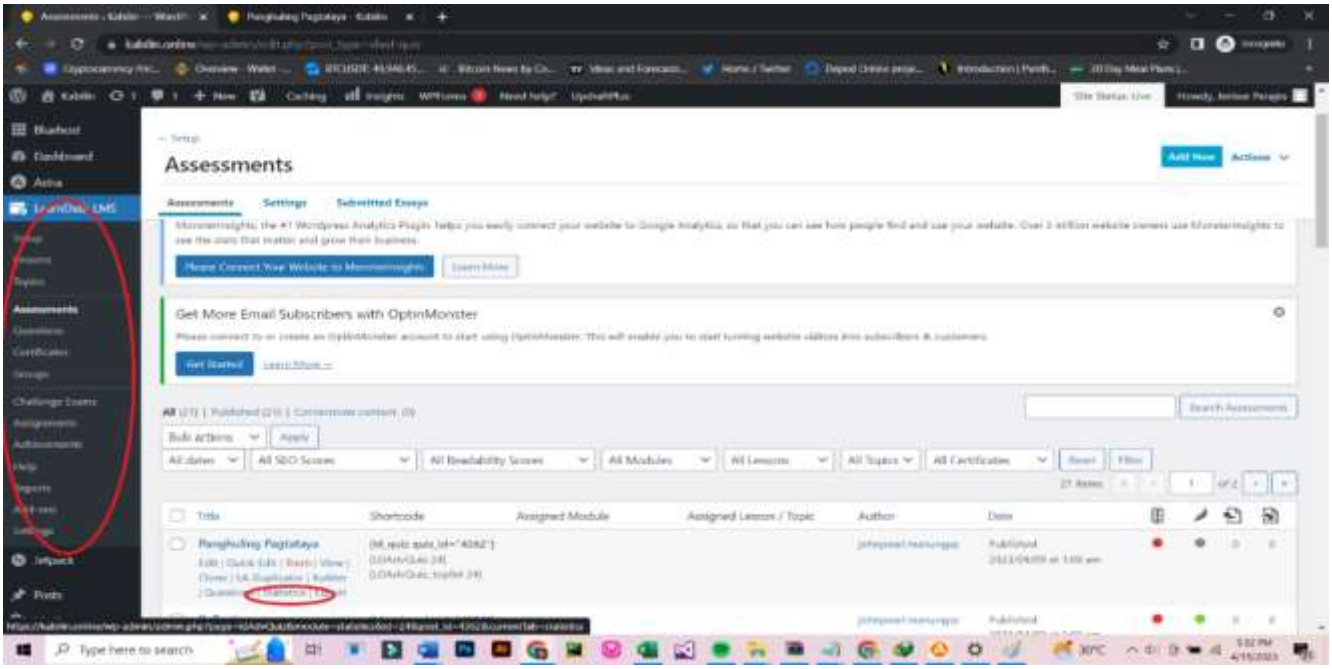

Fig. 1. Design of the E-Learning Module

The development of e-learning modules designed specifically to highlight the cultural heritage of the local community has been a significant endeavor. These modules have been carefully created with the purpose of enhancing instruction in Social Studies and Social Sciences. They are designed as comprehensive teaching tools, encompassing various elements such as pre-tests, introductions, main lesson materials, learning activities, and post-tests. To access and navigate these modules, teachers utilize their unique teacher account login and password. As learners engage with the e-learning modules, they are rewarded with badges of accomplishment, signifying their progress and achievements throughout their journey with the E-LMs (E-Learning Modules).

3.1 Quality of E-Learning Module

The development of the E-Learning modules is organized into seven distinct sections, referred to as plates. Each plate serves the purpose of describing the practical benefits and relevance of the learning material for the learners. These plates are carefully crafted to cater to the specific needs and interests of the learners, ensuring that the content is relatable, engaging, and applicable to their real-world experiences. By dividing the development process into plates, the researchers have ensured a comprehensive coverage of various aspects, enabling learners to acquire a well-rounded understanding of the subject matter. The structured division of the modules into plates facilitates a coherent learning journey, providing learners with a clear roadmap and a sense of progression as they advance through the E-Learning modules.

3.2 Plate # 1 Preliminary of the e-Learning Module

The introductory section of the modules serves as a gateway to the world of E-Learning, providing learners with a comprehensive overview and understanding of this educational approach. It offers a detailed explanation of the core concepts, principles, and benefits associated with E-Learning. By engaging with this section, learners will gain insights into the transformative role of technology, the utilization of online resources, and the integration of interactive learning methods within the E-Learning framework. The primary goal is to familiarize learners with the unique characteristics and advantages of E-Learning, setting the stage for their continued exploration of subsequent modules and topics. This introductory section acts as a solid foundation, equipping learners with the necessary knowledge and mindset to fully embrace and leverage the abundant opportunities provided by E-Learning in their educational journey. Figure 2 visually illustrates the welcoming

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interface of the E-Learning module, further enhancing the learners' initial interaction and engagement. Moreover, this section establishes the overall objective and identifies the target audience of the e-learning module, ensuring that the content and delivery are tailored to meet their specific needs and requirements.

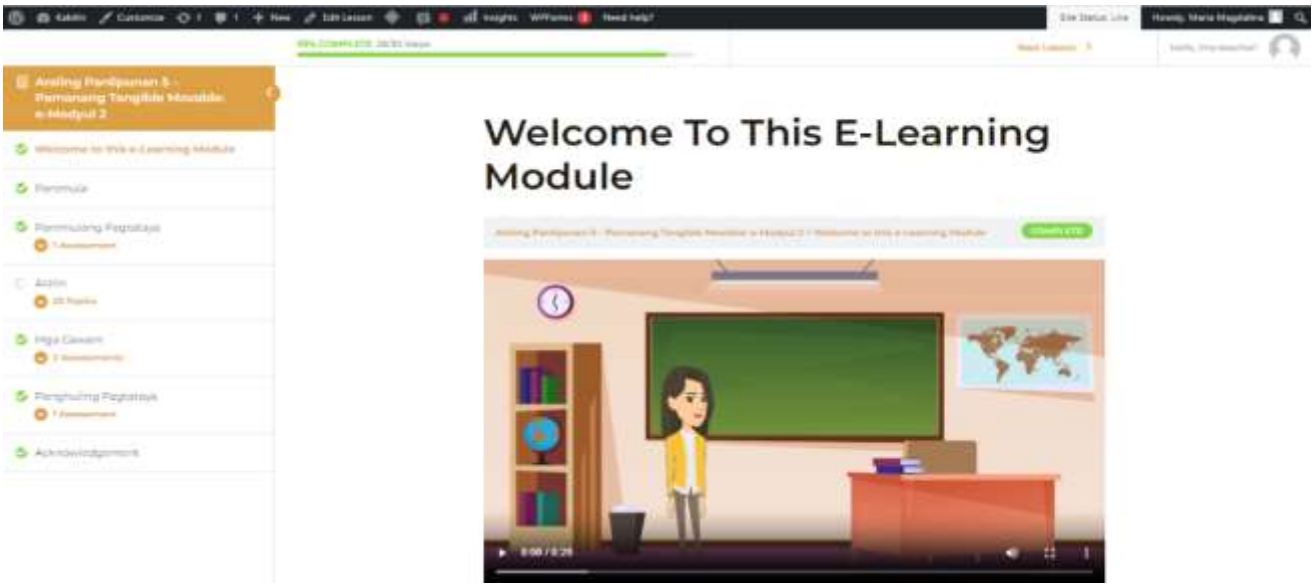

Fig 2. Welcome to this E-Learning Module

3.3. Plate # 2 Introduction

This section serves as an introduction to the e-learning module, placing emphasis on the crucial alignment of content with the Most Essential Learning Competencies (MELCs) and learning objectives. The MELCs serve as a comprehensive framework that guides teachers in identifying the essential skills and knowledge that students need to acquire. It is important to understand that the MELCs are non-negotiable, placing the responsibility on teachers to effectively impart the required skills to students, enabling them to attain the desired competence level for each session. By adhering to the MELCs, teachers ensure that the e-learning module effectively addresses the key learning outcomes, facilitating students' progress towards achieving the desired level of competence. This section underscores the significance of aligning the module content with the prescribed competencies and highlights the pivotal role of teachers in facilitating student learning and skill development. To provide a visual representation, Figure 3 depicts the introduction page of the E-Learning module, offering learners a glimpse into the engaging interface and setting the stage for their interactive learning experience.

Fig. 3. Introduction of E-Learning Module

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3.4. Plate # 3 Pre-Test

This section showcases the pre-test conducted for the specific topic. The pre-test serves the purpose of assessing the students' prior knowledge and understanding of the subject being studied. Assessments can be administered before, during, and after a lesson to gather information about the students' existing knowledge. Rather than being a definitive measure of what students have learned or not understood, the pre-test acts as an introduction to the topic they will be studying. It provides insights into the students' baseline knowledge and sets the stage for their learning journey. Additionally, pre-tests offer the opportunity to track students' progress and growth throughout the course of the year. Figure 4 presents the content of Plate 3 within the module, providing a visual representation of the specific section and its engaging learning materials.

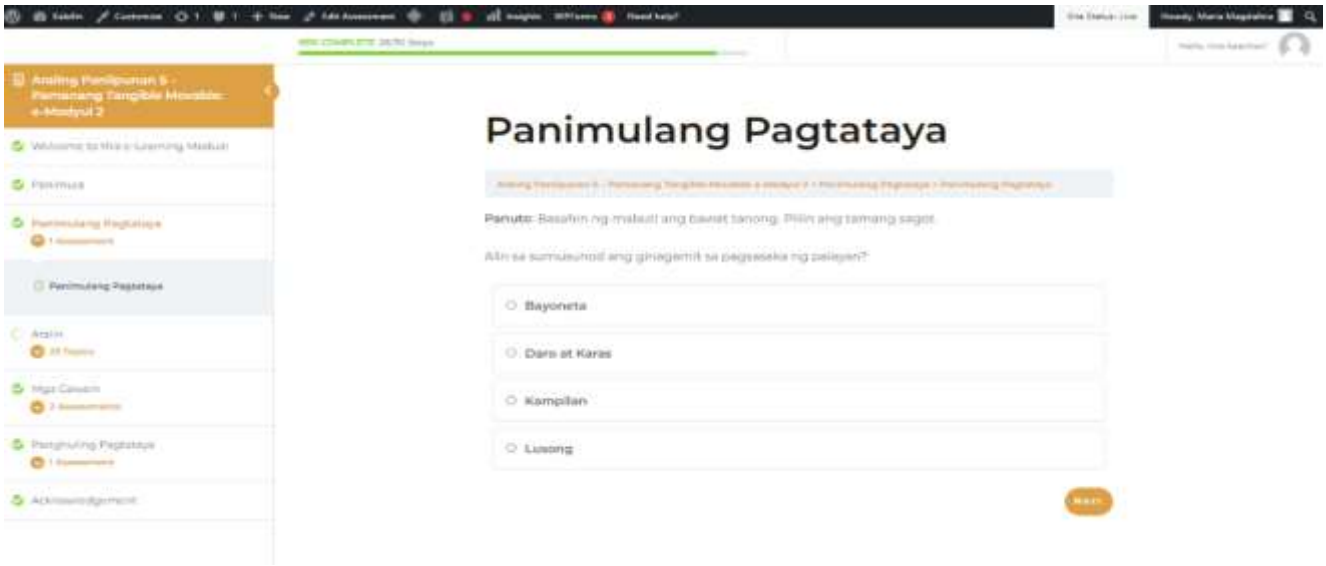

Fig. 4. Pre-Test of E-Learning Module

3.5. Plate # 4 Content

This section presents the topic and content of the lesson in a comprehensive manner. It aims to foster student engagement and involvement by incorporating interactive elements that keep them interested in the subject matter. The use of digital materials in various formats promotes learner engagement by providing different levels of interactivity, such as easy navigation through the course. The content is meticulously created, taking into consideration the Most Essential Learning Competencies (MELCs), to ensure a thorough understanding of the lesson being taught. Figure 5 showcases Plate #4 for Aralin, offering a visual representation of the specific section and its engaging content within the module.

Fig. 5. Content

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3.6. Plate # 5 Learning Activities

This section presents the learning activities associated with the lesson. These activities are carefully designed by teachers to ensure that students gain a deep understanding of the concepts being taught. Learning activities play a significant role in promoting student engagement and active participation in the learning process. They provide opportunities for students to reflect on their learning and track their progress towards achieving their goals. It is important to align the learning activities with the assessments and results to ensure consistency and coherence in the educational experience. Figure 6 illustrates the learning activity plate, offering a visual representation of the specific section and the engaging activities within the module.

Fig. 6. Learning Activities

3.7. Plate # 6 Post-Test

This section presents the post-test, which serves as the final assessment of the lesson. The post-test is designed to evaluate the proficiency level of the students after completing the learning activities and acquiring the necessary knowledge and skills. It serves as a measure of their understanding and mastery of the subject matter. The assessment helps gauge the students' overall performance and provides valuable feedback on their learning outcomes. Figure 7 depicts a post-test plate within the module, offering a visual representation of the specific section and its content related to the final assessment.

Fig. 7. Post-Test

3.8. Plate # 7 Badges

This section showcases the badges that serve as rewards for successfully navigating the e-learning curriculum. These badges signify the achievement and progress of the e-LM users throughout their learning journey. They serve as a form of recognition and motivation, encouraging users to actively engage with the curriculum and complete various milestones. Figure 8 visually represents the badges, highlighting the gamification aspect of the e-learning experience and the sense of accomplishment associated with earning these badges.

Fig. 8. Badges

3.9. Quality of E-Learning Module according to content, instructional, technical, and other findings

The essence of a lesson lies in its content, which must align with the non-negotiable competencies outlined in the MELCs. Upon analyzing the data presented in the table, it becomes evident that item 2 has the highest mean score of 3.97 and a standard deviation of 0.18, indicating a highly satisfactory description. This suggests that the ideas presented in the content greatly contribute to the identification, reinforcement, or mastery of learning objectives. Similarly, another claim received a rating of "very satisfactory" with a mean score of 3.94 and a standard deviation of 0.25. This claim emphasizes that the content is in accordance with the DepEd MELCs, up-to-date, unbiased in terms of race or culture, and promotes positive values for students' formative development.

Furthermore, the evaluation feedback from end users highlights the content's accuracy, logical development and organization, stimulation of critical thought, and use of acceptable language, with a mean score of 3.91 and a standard deviation of 0.30. Slatinska (2022) advocates for the incorporation of digital cultural heritage into lessons, as it facilitates the development of global skills, cultural awareness, and cultural intelligence among students. On the other hand, the claim regarding the applicability of the information to real-life circumstances received the lowest mean score of 3.84, with a standard deviation of 0.37. Raptis et al. (2019) assert that the human-cognition factor plays a crucial role in personalizing cultural-heritage activities, as individuals differ in their perception, processing, and recall of information, which subsequently affects their experience, performance, and knowledge acquisition.

Table 1 provides a comprehensive overview of the gathered and tabulated data concerning the learning content quality as perceived by e-learning users. It is evident that the content has achieved a

mean score of 3.92 with a standard deviation of 0.22, signifying a highly satisfactory evaluation. E-learning modules exemplify the effective utilization of information and communication technology (ICT) tools. In line with Quintela's (2023) research, leveraging ICT tools becomes imperative in providing historical context, promoting historical learning, and fostering awareness of cultural diversity and its preservation.

Table 1
Content Quality of e-Learning Module

Statement	Mean	SD	Description
1. Content is consistent with topics/skills found in the DepEd Learning Competencies for the subject and grade/year level it was intended.	3.94	0.25	Very Satisfactory
2.Concepts developed contribute to enrichment, reinforcement, or mastery of the identified learning objectives.	3.97	0.18	Very Satisfactory
3. Content is accurate.	3.91	0.30	Very Satisfactory
4. Content is up to date.	3.94	0.25	Very Satisfactory
5. Content is logically developed and organized.	3.91	0.30	Very Satisfactory
6. Content is free from cultural, gender, racial, or ethnic bias.	3.94	0.25	Very Satisfactory
7. Content stimulates and promotes critical thinking.	3.91	0.30	Very Satisfactory
8. Content is relevant to real-life situations.	3.84	0.37	Very Satisfactory
9. Language (including vocabulary) is appropriate to the target user level.	3.91	0.30	Very Satisfactory
10. Content promotes positive values that support formative growth.	3.94	0.25	Very Satisfactory
Average	**3.92**	**0.22**	**Very Satisfactory**

According to the data presented in Table 2, item 3 achieved the highest mean score of 3.97, with a very satisfactory standard deviation. This item pertains to the clear specification and measurement of learning objectives. Learning objectives serve as a guide for end-users throughout the course, enabling them to assess their understanding and prepare for exams. Effective learning objectives are actionable and measurable, as emphasized by Abdurazakov's (2022) research, which highlights the importance of fostering students' abilities to apply theoretical knowledge, think critically and independently, and evaluate and improve their skills.

On the other hand, the statement regarding the use of graphics, colors, and sounds for instructional purposes received the lowest mean score of 3.84, with a standard deviation of 0.45. This indicates that the e-learning module's graphic design effectively emphasizes key elements of the course, even when presented with a dense amount of material. Simple changes in font size can draw attention to important terms that need to be remembered.

While the material successfully achieved its intended goals and allowed target users to control the pace and sequence of the presentation, with a mean score of 3.91 and a standard deviation of 0.30, it still received a very satisfactory rating. The purpose of the material is clearly defined, and the instruction is integrated with the experiences of the target users.

Four statements, which focus on the material being interesting, stimulating, demanding, and engaging, as well as encouraging creativity and utilizing feedback, received the lowest mean score of 3.88 and a standard deviation of 0.42. Despite this, they still received a very satisfactory rating, indicating that these aspects were positively perceived by the users.

The offering of badges as rewards for navigating an e-learning module aligns with Saleem et al.'s (2021) study, which highlights the significant impact of gamification features, such as levels, badges, leaderboards, and points, on students' engagement in e-learning.

Overall, the data reflects positive evaluations of various aspects related to the e-learning module, indicating its effectiveness and potential to enhance the learning experience for users.

Table 2
Instructional Quality of e-Learning Module

Statement	Mean	SD	Description
1. Purpose of the material is well defined.	3.94	0.25	Very Satisfactory
2. Material achieves its defined purpose.	3.91	0.30	Very Satisfactory
3. Learning objectives are clearly stated and measurable.	3.97	0.18	Very Satisfactory
4. Level of difficulty is appropriate for the intended target user.	3.88	0.42	Very Satisfactory
5. Graphics/colors/sounds are used for appropriate instructional reasons.	3.84	0.45	Very Satisfactory
6. Material is enjoyable, stimulating, challenging, and engaging.	3.88	0.34	Very Satisfactory
7. Material effectively stimulates creativity of target user.	3.88	0.34	Very Satisfactory
8. Feedback on target user's responses is effectively employed.	3.88	0.34	Very Satisfactory
9. Target user can control the rate and sequence of presentation and review.	3.91	0.30	Very Satisfactory
10. Instruction is integrated with target user's previous experience.	3.94	0.25	Very Satisfactory
Average	**3.90**	**0.27**	**Very Satisfactory**

Table 3 reveals that items 8, 11, and 13 have the highest mean values, with a mean score of 3.94 and a standard deviation of 0.25. These items pertain to the e-learning module's visual representation, which is deemed simple to use independently and without encountering technical issues. This suggests that the e-learning material can be utilized effectively by learners on their own. This finding aligns with the work of Khan et al. (2022), which emphasizes the potential for autonomous learning in e-learning environments.

On the other hand, statements 1, 2, 3, and 4, which focus on audio augmentation, speech and narration, synchronization of audio, and appropriate music and sound effects, received very satisfactory ratings despite having the lowest mean scores, ranging from 3.72 to 3.78. This indicates that there is room for improvement in the e-learning module's audio and visual technical features.

Adding audio elements to e-learning, such as background noise, narration, or sound effects, can contribute to a more immersive learning experience, provide context, and offer helpful cues to learners. This approach can make the learning process more engaging and enjoyable.

Table 3
Technical Quality of e-Learning Module

Statement	Mean	SD	Description
1. Audio enhances understanding of the concept.	3.75	0.62	Very Satisfactory
2. Speech and narration (correct pacing, intonation, and pronunciation) is clear and can be easily understood.	3.78	0.61	Very Satisfactory
3. There is complete synchronization of audio with the visuals, if any.	3.72	0.68	Very Satisfactory
4. Music and sound effects are appropriate and effective for instructional purposes.	3.75	0.67	Very Satisfactory
5. Screen displays (text) are uncluttered, easy to read, and aesthetically pleasing.	3.91	0.30	Very Satisfactory
6. Visual presentations (non-text) are clear and easy to interpret.	3.88	0.34	Very Satisfactory
7. Visuals sustain interest and do not distract user's attention.	3.91	0.30	Very Satisfactory
8. Visuals provide accurate representation of the concept discussed.	3.94	0.25	Very Satisfactory
9. The user support materials (if any) are effective.	3.84	0.37	Very Satisfactory
10. The design allows the target user to navigate freely through the material.	3.91	0.30	Very Satisfactory
11. The material can easily and independently be used.	3.94	0.25	Very Satisfactory
12. The material will run using minimum system requirements.	3.84	0.37	Very Satisfactory
13. The program is free from technical problems.	3.94	0.25	Very Satisfactory
Average	**3.85**	**0.30**	**Very Satisfactory**

3.10. Comparison of Quality of e-Learning Module

Table 4 presents the findings of the comparison conducted to assess the quality of the e-learning module across four distinct factors. Analyzing the data from Table 4, it can be observed that a $\chi 2$ value of 6.99 was obtained when examining the content, instructional, technical, and other aspects of the e-learning module's quality. The corresponding p-value of 0.072 exceeds the significance level of 0.05, leading to the acceptance of the null hypothesis. This indicates that there is no significant difference in the quality of the e-learning module across the four factors. In other words, the e-learning module exhibits a consistently high level of quality regardless of the specific criterion or factor evaluated.

Given the importance of technology and multimedia resources in e-learning, the technical quality of the module receives particular attention compared to other aspects. Additionally, the e-learning module focusing on cultural heritage benefits from readily available resources, resulting in a high level of content quality.

Furthermore, the instructional quality is effectively demonstrated through clearly stated objectives and the utilization of impactful teaching techniques.

Table 4
Difference on the Quality of e-Learning Module based on the Four Factors

χ^2	p	Decision on Ho	Interpretation
6.99	0.072	Not Rejected	Not Significant

4. Conclusions

When developing an e-learning module, it is essential to prioritize the quality of the content. The non-negotiable Most Essential Learning Competencies outlined in DepEd Policies serve as a foundation, requiring the inclusion of necessary skills, competencies, and instructional approaches in delivering the lesson. It is within these lessons that creativity should be fostered to ensure high-quality instruction.

Among the various components, achieving technical quality can be challenging as it involves elements such as images, audio, spoken narration, and sound effects. These technical aspects play a crucial role in sustaining learner interest during self-directed navigation of the e-learning module.

The utilization of e-learning modules provides teachers with the means to create teaching materials that align with the competences mandated by the education department. Moreover, e-learning modules present an opportunity to digitize cultural heritage resources. According to Achille et al. (2022), preserving cultural heritage through education and training is essential and contributes to the attainment of the Sustainable Development Goals of Agenda 2030, particularly Goal 4: Quality Education.

As schools adopt e-learning modules, it becomes necessary to expand beyond traditional teaching roles to accommodate the increasing demands on teaching and learning, including the need for additional capacity and physical space. This expansion implies that all individuals, regardless of their role or title, will require retraining to acquire new information and perspectives in order to meet these evolving demands.

5. Recommendations

Based on the findings, it is highly recommended that social studies and social science teachers enhance their ability to develop online teaching materials that can be utilized in the classroom. The study emphasizes the importance of recommending new training paradigms that are both highly engaging and contribute to the professionalization of teachers. By incorporating innovative approaches and techniques, teachers can effectively leverage online resources to enhance their teaching practices and provide a more engaging and impactful learning experience for their students.

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Authors Biographies

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She is an experienced educator with a doctorate in Philosophy of Education, has been teaching for 21 years. She is currently a master teacher at Caraga Regional Science High School. Erise's academic achievements include a Magna cum Laude distinction in her BSED Major in History, as well as scholarship grants for her master's degree in Educational Administration and Graduate Diploma in Cultural Education. She is a prolific writer of self-learning modules and learning activity sheets utilized by the Department of Education. Erise is actively involved in professional organizations such as the Surigao City Association of Cultural Educators and the La Salle Education of Cultural Educators. Her leadership skills are evident through her role as the president of the Teachers Coordinating Council from 2021 to 2023. She is highly regarded as a resource speaker for various training events, seminars, and webinars at the division and regional levels.

ROMY JUN A. SUNICO
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