REVIEW

The development and evaluation of a digital review material utilizing mobile application

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ABSTRACT

As smartphones with specialized mobile applications grow more commonplace, academic institutions have come to realize how important it is to digitalize their teaching content. The goal of this project was to create and evaluate a smartphone application that would serve as a digital review tool for students taking review classes at Rizal Technological University's College of Education. This study was carried out using a quantitative approach and the survey method. The computation of weighted mean scores was used to evaluate the fundamental functionality and information of the app, as well as the difficulties users may encounter. A five-point Likert Scale was used by respondents to express their evaluations. Additionally, a one-way Analysis of Variance (ANOVA) was carried out to see if the responses of respondents varied significantly across different criteria. According to the study, the mobile application effectively conveyed crucial information, boosting students' knowledge and helping them understand particular topics more thoroughly. The mobile application was also demonstrated to support technology-based instruction, encourage users to apply higher-order thinking abilities, and exemplify the College of Education's brand given that it is designed for general use inside the institution. A smartphone app and a user's manual were created as practical outputs of this research. Enhancing operability on various operating systems, improving command responses, improving textual features, and optimizing color combinations are all suggestions for improvement.

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INTRODUCTION

The rise of digital technologies has transformed the educational landscape, prompting a shift from traditional teaching methods to more engaging, accessible, and personalized learning experiences. Through online platforms, multimedia content, and virtual environments, educators now have tools that cater to varied learning styles, enable instant access to resources, and promote global collaboration. As Nadaf and Siddiqui (2019) noted, society increasingly values institutions that help individuals adapt to rapid technological changes, especially in education. In this context, digitalization has become essential for modernizing classrooms and expanding learning opportunities beyond physical spaces.

However, embracing technology in education also requires maintaining the human element—fostering curiosity, critical thinking, and a passion for lifelong learning. While digital tools offer numerous benefits, challenges such as equitable access and digital literacy remain. Educators must ensure that students are not only equipped with devices but are also capable of using them effectively in meaningful learning contexts.

At Rizal Technological University's College of Education, the traditional review setup for Board Licensure Examination for Professional Teachers (BLEPT) relied heavily on printed modules and face-to-face sessions, which were costly and labor-intensive. Even with the shift to conference-style digital sessions in 2018–2019, the college continued to reproduce physical materials, placing a financial strain on both students and the

KEYWORDS

Digital review material, digitalization, licensure examination, mobile application, review students

institution. Recognizing these limitations, the study aimed to create a digital solution that could modernize the review process.

The study developed a mobile application designed as a comprehensive review tool for BLEPT examinees. Its main goal was to enhance content delivery, promote user engagement, and reduce reliance on printed materials by providing an accessible platform through students' mobile devices. The application merges key review content, offers interactive features like quizzes and progress tracking, and aligns with BLEPT coverage.

Specifically, the study aimed to design the application, evaluate its effectiveness through user feedback, and validate its content through expert input. The target audience comprises pre-service teachers at RTU who need a more flexible and affordable alternative to traditional review methods. By addressing these needs, the mobile app serves as a practical, innovative companion that supports exam readiness and self-directed learning in a digital age.

Digital Review Material

In recent years, the usage of digital instructional materials in schools has grown, becoming a significant market for publishers and businesses. A study by Lara, Carden, Baldovinos, Gonzales, and Perez (2020) addressed the appraisal of digital material in two different contexts. First, the study presents an analysis of the use and integration of digital resources into the school through an assessment of internal data gathered on the platform. Second, it discloses an outside investigation of how using digital resources at school affects pupils' executive functions.

The world of today is continually changing. People frequently replace outdated learning techniques with newer cutting-edge ones. Technology has allowed for the transition of review materials from a traditional textbook to an electronic file that can be accessed online. As technology spreads, more individuals are inclined to employ it in place of the conventional method in order to produce results that are better and faster. To integrate the most recent technology developments in study materials, a variety of software has recently been created (Alipio, Sanchez, & Acosta, 2018).

The prospects for innovation in evaluation are growing as we move into the digital age. A wide range of assessment methodologies can be imaginatively used to promote and evaluate student learning in higher education thanks to a diversity of digital tools and the unavoidable availability of information anywhere, at any time. Utilizing the opportunities provided by technology to promote and assess deep learning that equips graduates for an evolving and unpredictable future is a problem in the digital age. Online tests are a popular form of online evaluation that is employed in higher education (Boitshwarelo & Billany, 2017).

In order to address the aforementioned trends, Alipio, Sanchez, and Acosta (2018) implemented the use of a mobile application that assisted Licensure Examination for Teachers reviewers and BS Education students in having access to personalized review materials that are friendly, convenient, on-the-go resources, and self-paced learning materials in order to pass the said Licensure exam. Additionally, the application had a set of questions regarding General Education and a set of questions that assessed the students' level of learning.

The Android-based Licensure Examination for Teachers review app for students is very beneficial and important for a variety of reasons, including the fact that it can help students improve their capacity for learning and give them a deeper understanding of the various topics covered by the Philippine Regulatory Commission. Another method for students to review and study their lectures using their mobile devices is the mobile-based review app (Mobile Based Board Exam Reviewer, 2019).

Digital review materials must include supplemental information for students to better understand the ideas given the limited knowledge users may have. Melhuish and Fagan (2019) developed a student discourse observation tool to assist teachers in identifying and fostering students' justification and generalization abilities. Additionally, it was stated that the tool gives teachers a crucial lens through which to focus and a way to concretize the abstract tasks of justification and generalization. This implies that pupils may develop greater justification and generalization skills the more knowledge they have.

Mobile Apps in Education

The demand for mobile devices has increased as technology advances, with a significant emphasis on addressing the demands of specific users. The development of mobile applications has been significantly hampered by the varied needs and interests of users. Developers must carefully evaluate an app's usability qualities to make it truly usable (Akanmu & Osman, 2013). According to research by Laja (2020), visitors create perceptions about websites in just 50 milliseconds, underscoring the crucial significance of first impressions in the digital world. 94% of first impressions are related to design, which is crucial to this process (Rajput, 2021). Therefore, when creating an app, user interface (UI) and user experience (UX) design are crucial.

Subconsciously, visual appeal affects user perceptions of user beauty and overall appeal. The relationship between aesthetics and first impressions in website design is well established, but it is less clear how it applies to mobile apps (Bhandari, Neben, & Chang, 2015). Common design elements in science learning mobile apps have been identified by Zydney and Warner (2015) research. These include technology-based scaffolding, location-aware functionality, visual/auditory representations, digital knowledge construction tools, knowledge-sharing mechanisms, and distinct roles. Mobile applications have emerged as a key component of the digital revolution as mobile technology develops further, affecting every aspect of our lives and catering to a wide range of wants and aspirations.

Even if all successful mobile apps are fantastic apps, a great mobile app does not guarantee a successful mobile app. It is crucial that your mobile apps have high and consistent performance, are distinct, appealing, and simple to use, are platform appropriate, have responsive customer support, and are last but not least, reasonably priced, regardless of the reason you are developing a mobile app, the industry you are in, or who your target audience is. There are numerous mobile applications available. The appropriate app selection is crucial since it can mean the difference between a digital babysitter and a tool to aid in kids' learning and growth. Due to the fact that many of the self-described educational applications are primarily focused on entertainment, they have little to no instructional value for children's cognitive development (Papadakis & Kalogiannakis, 2017). For a mobile app to avoid being bloated and inefficient, each feature must serve a specific need. To guarantee that consumers have the best experience possible, experts in the development of mobile apps should exercise caution when creating the design (Shaoolian, 2017).

Smartphones are becoming an essential part of daily life, providing a wide range of applications and revolutionizing language learning. By offering tailored options and encouraging

group problem-solving, mobile learning tackles educational problems. It fosters unique learning experiences and encourages student autonomy by empowering students to work alone or in groups. With constant access to information, there are numerous chances for formal and informal learning within and outside of the classroom.

Due to their affordability and abundance of apps, the survey revealed that notebooks, mobile tablets, iPod touches, and iPads are among the most widely used devices for mobile. Education could leave the confines of the classroom with the help of mobile learning. Any student or learner can access a wide range of content depending on the device they are using. Participate in virtual lessons, watch films or podcasts, or just ask a mentor directly on the internet for assistance. The need for rethinking pedagogy and educational systems in schools is brought on by these new technological capabilities (Mehdipour & Zerehkafi, 2013).

Problems in Mobile Application Utilization

In the utilization of mobile application in learning, various problems may be encountered by the users. In the study of Akour, Alzyoud, Falah and Alemerein (2016), a variety of glitches maybe addressed to by testing the mobile application in terms of performance and fragmentation. There are mobile applications that do not run with other mobile devices thus, resulting in compatibility issue with the users' handset. They further revealed that mobile applications performance and reliability depend on the device resources, device operational mode, connectivity quality and variability, and other contextual information. Furthermore, in a mobile application, the first area for which test plan needs to be executed is the user interface. It is very important to have a good look and feel of the application that would attract consumers to use the application. In today's scenario, the mobile applications have become more versatile. They are designed to fit various mobile devices with different screen resolutions ("User Interface Testing," 2014).

The user interface is the point of human-computer interaction and communication in a device. This can include display screens, keyboards, a mouse, and the appearance of a desktop. It is also the way through which a user interacts with an application or a website (Churchville, n.d.). In this case, it is wiser to start with the device with the smallest screen and then continue to the largest one. In this way, in case of the smallest screen, there are chances that the application does not fit into the device, and the fields and screen are cut off. Same is the case with the devices with various screen sizes.

Hence, we need to check the screen orientation both in landscape and portrait mode in different screen sizes using various devices available as per the requirement, and also all the pages in the application need to be tested in both landscape as well as potrait mode. Any layout changes in the future should also follow the above process to make sure that the application still looks good in the required screen sizes ("User Interface Testing," 2014). The mobile network may vary in speed, reliability, and security. Therefore, functional testing has to be performed in different networks and connectivity scenarios. Graphical user interface must be tested in different devices to test the ease of use or convenience of mobile application. Mobile application has to be easy to install, easy to access, and easy to use (Akour, Alzyoud, Falah & Alemerein, 2016).

Aim

This study sought to develop and evaluate a digital review material for the review students of the College of Education. It specifically sought to answer the following questions:

1. What are the processes involved in the development of the digital review material?
2. What is the evaluation by the respondents of the basic features of the digital review material in terms of:
   2.1. ease of use,
   2.2. efficiency,
   2.3. appropriateness, and
   2.4. appeal?

3. What is the evaluation by the respondents of the content of the digital review material in terms of:
   3.1. relevance,
   3.2. questions,
   3.3. choices, and
   3.4. rationalizations?

4. What is the difference between the evaluation by the respondents of the mobile application's basic features, contents?
   4.1. app basic features and
   4.2. app content?

5. What problems were encountered by the respondents in utilizing the digital review material in terms of:
   5.1. responsiveness,
   5.2. interface adjustability, and
   5.3. content?

6. What user's guide may be developed in utilizing the digital review material?

MATERIALS AND METHODS

Research Method Used

This study employed the quantitative approach of research. Quantitative research is the process of collecting and analyzing numerical data. It can be used to find patterns and averages, make predictions, test causal relationships, and generalize results to wider populations (Bhandari, 2021). Quantitative Research involves the use of computational, statistical, and mathematical tools to derive results. It is conclusive in its purpose as it tries to quantify the problem and understand how prevalent it is by looking for projectable results to a larger population. Quantitative research is outlined as a scientific investigation of phenomena by gathering quantitative information and activity applied mathematics, or procedure techniques (Pedamkar, 2020).

Furthermore, the survey method was utilized to gather data from the respondents. The essence of survey method can be explained as questioning individuals on a topic or topics and then describing their responses (Jackson, 2011). Survey research is a quantitative method whereby a researcher poses some set of predetermined questions to an entire group, or sample, of individuals. Survey research is a useful approach when a researcher aims to describe or explain features of a very large group or groups. This method may also be used as a way of quickly gaining some general details about one's population of interest to help prepare for a more focused, in-depth study using time-intensive methods such as in-depth interviews or field research. In this case, a survey may help a researcher identify participants.

Population Frame and Sampling Scheme

Of about 314 review students of the College of Education, 174 was the desired sample size to represent the total population which was determined through the sampling table published by Israel (2021) covering a population from a hundred to four-hundred fifty and five-hundred to greater than a hundred

thousand. The Simple Random sampling was used in determining the simple random sample as a subset of a statistical population in which each member of the subset has an equal probability of being chosen.

On the other hand, the purposive sampling technique was employed in identifying the composition of respondents particularly with four (4) IT experts and six (6) review lecturers. A purposive sample is a nonprobability sample that is selected based on characteristics of a population and the objective of the study.

Description of Respondents

To assess the effectiveness of the developed mobile application as a digital review tool, a diverse group of respondents participated in the evaluation process. The main group comprised 224 pre-service teachers enrolled in the Licensure Examination for Teachers (LET) Review course for the academic year 2020–2021 at the College of Education of Rizal Technological University. As the primary users, these pre-service teachers provided essential feedback on the app's usability, accessibility, and alignment with LET content. To ensure technical accuracy and functionality, four (4) IT experts from the College of Education's Computer Department were consulted. Their expertise was instrumental in evaluating the application's system performance, interface design, compatibility with mobile devices, and overall digital architecture. Additionally, six (6) review lecturers from various departments within the College, who regularly facilitate LET review classes in General Education and Professional Education, contributed to the content validation process. Their inputs focused on the accuracy, comprehensiveness, and pedagogical appropriateness of the material embedded in the application. The effectiveness of the mobile review application was assessed based on several criteria, including content quality, ease of navigation, user experience, accessibility, and its perceived usefulness in supporting students' preparation for the LET. The feedback collected from all respondent groups guided the refinement of the application for broader implementation.

Research Instrument Used

The instrument used in this study is a modified instrument from the research entitled "Digital Game Modifications, particularly with the content and problems encountered, were added in order for the instrument to fit in the nature of the present study. The instrument reliability test was performed through piloting by employing the Cronbach's Alpha on at least 31 respondents excluded from the scope of the 224 samples representing the 314 incoming review students of the College of Education enrolled in the school year 2020-2021. Likewise, three (3) IT experts from the computer department and four (4) lecturers from the other departments of the College of Education who are teaching in different Review Centers outside the University, validated the instrument.

Data Gathering Procedure

To ensure ethical compliance, the researcher first sought formal approval from the Dean of the College of Education to access review materials used in the LET review classes. Alongside this, permission was obtained to distribute evaluation questionnaires to review lecturers and IT experts across various departments within the College. Review students were invited to participate through Facebook Messenger, where they were fully informed about the purpose of the study and the voluntary nature of their participation. A link to a Google Form was provided for them to complete the questionnaire. Participation in the study was entirely voluntary, and informed consent was implied through the completion and submission of the online form. Personally identifiable information (PII) was not collected beyond the participants' role (student, lecturer, or IT expert), and all responses were stored securely in the researcher's password-protected Google Drive. Data collected were anonymized and used solely for research purposes. Upon completion, responses were downloaded and processed using the Statistical Package for the Social Sciences (SPSS) to generate results. The study strictly adhered to standard ethical research practices, including the confidentiality and protection of participant data in accordance with data privacy protocols. (SPSS).

RESULTS AND DISCUSSION

Development Processes

The development of the application was anchored to the principles of the ADDIE model. The ADDIE model is an instructional design framework commonly used to develop courses and streamline the production of training materials (Bouchrika, 2020). In this particular study, the five phases were applied as a framework of the development in producing the said digital review material.

The first phase, which is the analysis, determined the evident problem of producing review materials in digital forms due to the pandemic that has dominated the world in the year 2020. Due to mobility restrictions imposed by the government, teachers and students had difficulty in producing, acquiring and using physical materials. The COVID-19 pandemic has brought to the fore the need for institutions to undergo a digital transformation to a greater or lesser extent and the importance of this transformation. The pandemic hasn't caused the transformation per se, it has merely highlighted the acceleration of the digitalization process.

One of the fields in which such digitalization has been most necessary is in education, an area in which educational institutions have had to adapt to a new sudden and unexpected situation, in which overnight students demand the ability to continue with their lessons and learning either online or as blended learning. As teachers play a key role in digital transformation, educational institutions have focused on training

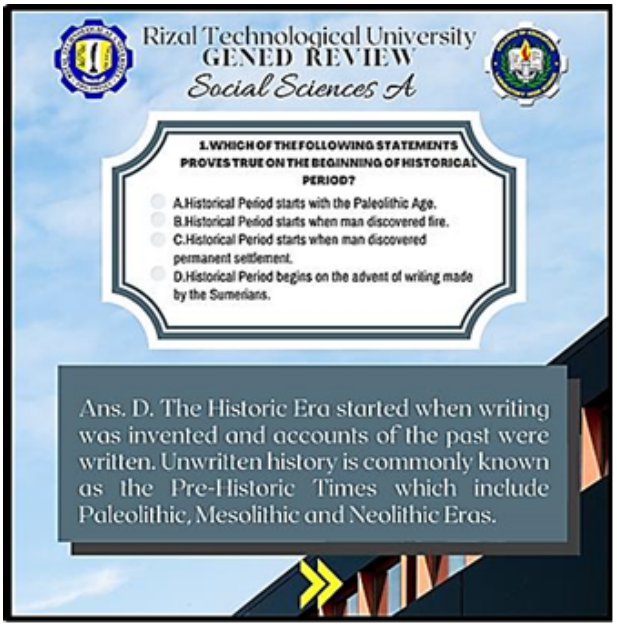

Figure 1: App Design

their staff, giving them the necessary training to help bring about this change (Torrecilla, 2021).

The second phase, design, focused on establishing the app's basic features and overall layout. Using Canva templates—recognized for their simplicity and suitability in educational settings (Edwards, 2022)—the researcher finalized the app's interface, ensuring it was visually engaging and easy to navigate. Key elements, such as question and choice placement, rationalizations, and sound effects for correct and incorrect answers, were thoughtfully incorporated to enhance user interaction and feedback. The design emphasized intuitive navigation, allowing users to move seamlessly between sections without confusion. Color schemes, icons, and text formatting were selected to promote readability and accessibility to a range of mobile devices. While aesthetically appealing, the layout also

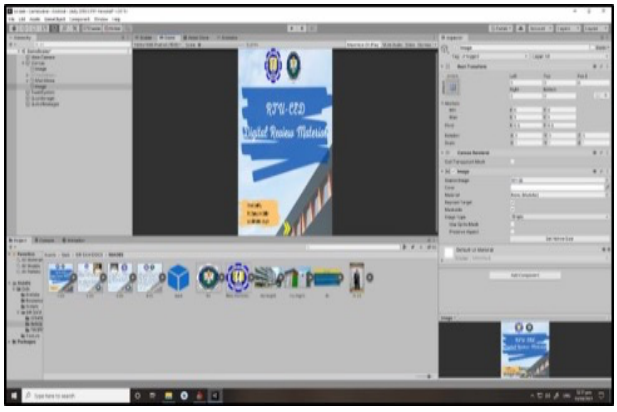

Figure 2: App Development

prioritized functionality, aiming to minimize cognitive load and provide a smooth, distraction-free review experience that supports focused learning.

The third phase of the process was development, during which the design established in the second phase was translated into a functional product. The platform used for development was Unity, a cross-platform game engine developed by Unity Technologies. This choice of platform allowed for enhanced flexibility and interactivity in the design, particularly in incorporating educational features into a mobile format. During development, the app underwent three major revisions based on feedback from app development experts. These revisions focused on the placement of questions, answer choices, and rationalizations, as well as the integration of sound effects to enrich user experience. These modifications reflect the formative evaluation embedded within the development stage, ensuring that the evolving version of the application continuously aligned with user expectations and pedagogical goals.

Following the completion of the mobile application, the implementation phase commenced. The app was distributed using a custom-generated WeTransfer download link, which allowed for efficient dissemination among respondents. Pre-service teachers accessed the app via this link and were instructed to use it for at least one week, enabling them to engage with its full features. A key innovation of the app is its offline accessibility, users can review materials and complete tests without requiring an internet connection, making it ideal for students with limited or unstable online access. This feature addresses a major barrier to digital learning and sets the application apart from many existing review platforms that rely heavily on continuous connectivity.

The fifth phase, evaluation, involved the administration of a structured survey instrument to collect feedback from users. This instrument allowed respondents to assess the app's basic features, content quality, and usability, as well as to report any problems encountered during the testing period. As Samsudin, Sulaiman, and Guan (2021) emphasized, developing an effective mobile application requires a systematic and methodical approach, given the complexity of the development process. Mobile education tools must be strategically designed to accommodate evolving technologies and the diverse mobile ecosystem, which includes varying device types, operating systems, and software versions (Clement, 2013). In this context, the developed application's offline functionality and responsiveness across Android platforms represent significant strides in adapting to this complex environment, making it a practical and innovative tool for higher education institutions.

Evaluation of the App's Basic Features

Table 1: Ease of Use

Statements	Students			Lecturers			IT Experts		
	Mean	Interpr.	SD	Mean	Interpr.	SD	Mean	Interpr.	SD
a. The application can be used easily.	4.38	Strongly Agree	0.88	4.83	Strongly Agree	0.41	4.00	Agree	0.82
b. The application does not occupy large space on user's gadget.	4.20	Agree	0.91	4.83	Strongly Agree	0.41	4.25	Strongly Agree	0.96
c.The application starts without any interruptions.	4.14	Agree	1.04	4.83	Strongly Agree	0.41	3.75	Agree	0.50
d.The application can be used even in the absence of internet connection.	3.86	Agree	1.27	4.50	Strongly Agree	0.84	4.50	Strongly Agree	0.58
e. The application gives a choice should users decide to choose another activity.	4.19	Agree	0.91	4.17	Agree	0.98	4.00	Agree	0.82

f.The application is user friendly.	4.29	Strongly Agree	0.91	4.67	Strongly Agree	0.52	4.00	Agree	0.82
g. The application gives a choice on where to start the activity.	4.36	Strongly Agree	0.89	4.33	Strongly Agree	1.21	4.00	Agree	0.00
h. The application is easy to navigate	4.33	Strongly Agree	0.84	4.83	Strongly Agree	0.41	4.50	Strongly Agree	0.58
Grand Weighted Mean	4.22	Strongly Agree	0.96	4.62	Strongly Agree	0.65	4.13	Agree	0.64

Table 1 shows the evaluation of the respondents on the ease of use of the mobile application. The computed grand means among the groups are 4.22 with an interpretation of "strongly agree" and standard deviation of 0.96 for the students, 4.62 with an interpretation of "strongly agree" and standard deviation of 0.65 for the lecturers and 4.13 with an interpretation of "agree" and standard deviation of 0.64 for the IT experts. It is worth noting that dominantly, respondents strongly agree that the mobile application exhibits ease of use. However, the IT experts responded with "agree". This indicates that, on the level of expertise the IT experts possess, there may be some considerable factors to improve. With the values computed for standard deviation, it is noticeable that the respondents' responses maintained closeness near the mean revealing uniformity of the responses. Since the values of the standard deviation are within the acceptable value of plus/minus 2SD, this asserts that the respondents share common impressions therefore, setting that the mobile application exhibited ease of use.

As Dakic (2019) says, if a user's mobile app is difficult to use, no matter its modern design, the overall perception will be negative and that, it must be considered that the mobile app usability relates to efficiency and simplicity of achieving the goals within it. It is important that any mobile application, particularly apps that are used for educational purposes, must be easy to use.

Table 2: Efficiency

Statements	Students			Lecturers			IT Experts		
	Mean	**Interpr.**	**SD**	**Mean**	**Interpr.**	**SD**	**Mean**	**Interpr.**	**SD**
a. The application helps the users understand the topics.	4.40	Strongly Agree	0.74	4.67	Strongly Agree	0.52	5.00	Strongly Agree	0.00
b. The application provides ample time to users when answering.	4.32	Strongly Agree	0.83	5.00	Strongly Agree	0.00	4.75	Strongly Agree	0.50
c. Topics were logically represented through the questions in the application.	4.37	Strongly Agree	0.77	4.50	Strongly Agree	0.55	4.25	Strongly Agree	0.50
d. Questions in the Digital Review Material were presented from simple to complex.	4.31	Strongly Agree	0.78	4.50	Strongly Agree	0.84	4.25	Strongly Agree	0.50
e. Users become more interested to review about the topics for the Licensure Exam because of the Digital Review Material.	4.38	Strongly Agree	0.78	4.83	Strongly Agree	0.41	4.00	Agree	0.00
f. The application helps users remember certain concepts.	4.39	Strongly Agree	0.75	4.83	Strongly Agree	0.41	4.25	Strongly Agree	0.50
g. The application allows user to answer continuously	4.39	Strongly Agree	0.80	4.83	Strongly Agree	0.41	4.50	Strongly Agree	0.58
h. The application provides wider understanding on the topics.	4.39	Strongly Agree	0.73	4.83	Strongly Agree	0.41	4.25	Strongly Agree	0.50
Grand Weighted Mean	4.37	Strongly Agree	0.77	4.75	Strongly Agree	0.44	4.41	Strongly Agree	0.39

Table 2 presents the evaluation of the respondents on the efficiency of the mobile application. The computed values for the grand mean are 4.37 with an interpretation of "strongly agree" and a standard deviation of 0.77 for the students, 4.75 with an

interpretation of "strongly agree" and a standard deviation of 0.44 for the lecturers and 4.41 with an interpretation of "strongly agree" and standard deviation of 0.39 for the IT experts. All the groups among the respondents posed a response of "strongly agree" asserting therefore, that the mobile application, within the parameters given, manifests efficiency. It is also clear that through the values of the standard deviation, which are all within the acceptable value of plus/minus 2SD, the responses of the respondents are compressed around the true value of mean asserting then, uniformity on the impressions of the groups highlighting further, that the mobile application possesses efficiency.

Mobile apps, ever since their inception, have brought in a paradigm change and they are here to stay. May it be business or household chores in daily life. More so in today's pandemic-ridden world, mobile apps were used extensively, as the world is confined to individuals' houses (Shah, 2021). This means that concerning the learning of the students, the mobile application is beneficial. Roy (2017) elaborated that mobile apps for educational institutions have done a great thing for the students, making the learning process fun and easy. Also, the various app features boost engagement through efficient knowledge-oriented learning activities.

Table 3: Appropriateness

Statements	Students			Lecturers			IT Experts		
	Mean	Interpr.	SD	Mean	Interpr.	SD	Mean	Interpr.	SD
a. The presentations and concepts in the Digital Review Material are in light with the user's needs.	4.38	Strongly Agree	0.74	4.83	Strongly Agree	0.41	4.25	Strongly Agree	0.50
b. The Digital Review Material used words and terms well-matched to user's reading comprehension.	4.39	Strongly Agree	0.72	4.83	Strongly Agree	0.41	4.25	Strongly Agree	0.50
c. The mechanisms of the Digital Review Material suit user's level of capability.	4.26	Strongly Agree	0.78	4.83	Strongly Agree	0.41	4.00	Agree	0.00
d. The illustrations are appropriate in understanding the concepts covered by the Digital Review Material.	4.33	Strongly Agree	0.79	4.17	Agree	0.75	4.25	Strongly Agree	0.50
e. The Digital Review Material provides applications/ principles in daily life.	4.28	Strongly Agree	0.76	4.33	Strongly Agree	0.82	4.00	Agree	0.00
f. The mechanisms of the Digital Review Material suit the user's level of capability.	4.31	Strongly Agree	0.78	4.83	Strongly Agree	0.41	4.50	Strongly Agree	0.58
g. The illustrations are appropriate in understanding the concepts covered by the Digital Review Material.	4.36	Strongly Agree	0.74	4.33	Strongly Agree	0.82	4.25	Strongly Agree	0.50
h. The Digital Review Material provides applications/ principles in daily life.	4.25	Strongly Agree	0.77	4.50	Strongly Agree	0.84	4.25	Strongly Agree	0.50
i. The application contributes to less production cost for review materials.	4.40	Strongly Agree	0.79	5.00	Strongly Agree	0.00	4.75	Strongly Agree	0.50
j. The application suits daily use for users.	4.38	Strongly Agree	0.77	5.00	Strongly Agree	0.00	4.50	Strongly Agree	0.58
k. The application meets the necessity for a technology-based review material.	4.50	Strongly Agree	0.69	4.67	Strongly Agree	0.52	3.75	Agree	1.26
Grand Weighted Mean	4.35	Strongly Agree	0.76	4.67	Strongly Agree	0.49	4.25	Strongly Agree	0.49

Table 3 presents the evaluation of the respondents on the appropriateness of the mobile application. The computed values for the grand mean are 4.35 with an interpretation of "strongly agree" and standard deviation of 0.76 for the students, 4.67 with an interpretation of "strongly agree" and a standard deviation of 0.49 and 4.25 with an interpretation of "strongly agree" and a standard deviation of 0.49. Apparently, all the groups expressed "strongly agree" on the appropriateness of the mobile application as a digital review material. It is also notable that, the obtained values for standard deviation clearly show that the responses of the respondents are compressed around the mean which are also within the acceptable value of plus/minus 2SD emphasizing therefore, the shared impressions of the respondents that the mobile app is appropriate as a digital review material.

The selection of the right app is very important as it can make the difference between the digital babysitter and the tool to support children's learning and development. As many of the self-proclaimed educational apps are very entertainment-oriented due to several reasons they lack an educational impact on child cognitive development (Papadakis & Kalogiannakis, 2017). Mobile learning is emerging as one of the solutions to the challenges faced by education. Mobile learning in classrooms often has students working interdependently, in groups, or individually to solve problems, to work on projects, to meet individual needs, and to allow for student voice and choice (Mehdipour and Zerehkafi, 2013).

Table 4: Appeal

Benchmark Statement	Students			Lecturers			IT Experts		
	Mean	Interpr.	SD	Mean	Interpr.	SD	Mean	Interpr.	SD
a. The application has appealing graphic elements.	4.13	Agree	0.79	4.67	Strongly Agree	0.52	3.75	Agree	0.96
b. Presentations are readable.	4.46	Strongly Agree	0.71	4.67	Strongly Agree	0.52	4.00	Agree	0.82
c. Motion Graphics are used effectively.	4.25	Strongly Agree	0.96	4.50	Strongly Agree	0.55	4.16	Agree	0.79
d. Sounds are used effectually.	4.13	Agree	0.80	4.67	Strongly Agree	0.52	4.00	Agree	0.00
e. Color combinations make the information easy to read.	4.37	Strongly Agree	0.74	4.50	Strongly Agree	0.55	4.25	Strongly Agree	0.50
f. The application has an interface that is pleasing into user's eyes.	4.36	Strongly Agree	0.71	4.83	Strongly Agree	0.41	4.50	Strongly Agree	0.58
g. Color combinations reflect the image of the College of Education.	4.50	Strongly Agree	0.68	4.67	Strongly Agree	0.52	4.25	Strongly Agree	0.50
h. Color combinations signify the official colors of the university.	4.47	Strongly Agree	0.73	4.67	Strongly Agree	0.52	4.25	Strongly Agree	0.96
Grand Weighted Mean	4.33	Strongly Agree	0.77	4.65	Strongly Agree	0.51	4.15	Agree	0.64

Table 4 shows the evaluation of the respondents on the appeal of the mobile application. The computed values for the grand mean are 4.33 with an interpretation of "strongly agree" and a standard deviation of 0.77 for the students, 4.65 with an interpretation of "strongly agree" and a standard deviation of 0.51 for the lecturers and 4.15 with an interpretation of "agree" and a standard deviation of 0.64 for the IT experts. Among all the means, the highest falls under the lecturers, followed by the students and the lowest is the IT experts. That indicates that among the respondents, the mobile app's appeal is clearly significant. In relation to the computed values, the standard deviation shows that the responses of each of the groups upheld uniformity as the values for the standard deviation are within the acceptable value of plus/minus 2SD. This asserts that the groups individually expressed sameness of responses near the mean, revealing that the mobile app truly has the appeal.

In the study of Laja (2020), it was stated that it takes about 50 milliseconds, that's 0.05 seconds, for users to form an opinion about a website that determines whether the users will stay or leave. Visual appeal can be assessed within 50 ms, suggesting that one has about 50 ms to make a good first impression about his website. However, the design of a mobile app is likewise important. Rajput (2021) expressed that 94% of the first impressions are related to designs. Aesthetics is at the core of first impressions in website design and no such concrete evidence is available for mobile apps (Bhandari, Neben & Chang, 2015).

Table 5: Relevance

Statements	Students			Lecturers			IT Experts		
	Mean	Interpr.	SD	Mean	Interpr.	SD	Mean	Interpr.	SD
a. The content is congruent to the course.	4.50	Strongly Agree	0.70	5.00	Strongly Agree	0.00	4.50	Strongly Agree	0.58
b. The objectives of the application are easily achieved.	4.47	Strongly Agree	0.72	5.00	Strongly Agree	0.00	4.50	Strongly Agree	0.58
c. The application can make users recall ideas easily.	4.40	Strongly Agree	0.71	5.00	Strongly Agree	0.00	4.75	Strongly Agree	0.50
d. The application is relevant to the delivery of instruction in the Review Class	4.43	Strongly Agree	0.75	5.00	Strongly Agree	0.00	4.50	Strongly Agree	0.58
e. The order of the contents is presented logically meeting the learning style of the users.	4.36	Strongly Agree	0.71	4.83	Strongly Agree	0.41	4.50	Strongly Agree	0.58
f. The application contains factual information.	4.49	Strongly Agree	0.71	5.00	Strongly Agree	0.00	4.75	Strongly Agree	0.50
g. The application gives further knowledge to the users.	4.51	Strongly Agree	0.68	5.00	Strongly Agree	0.00	4.50	Strongly Agree	0.58
h. The application widens the understanding of certain concepts.	4.47	Strongly Agree	0.70	5.00	Strongly Agree	0.00	4.50	Strongly Agree	0.58
Grand Weighted Mean	4.45	Strongly Agree	0.71	4.98	Strongly Agree	0.05	4.56	Strongly Agree	0.56

Table 5 presents the evaluation of the respondents regarding the relevance of the mobile application. The computed grand means were 4.45 (SD = 0.71) for the students, 4.98 (SD = 0.05) for the lecturers, and 4.56 (SD = 0.56) for the IT experts, all interpreted as "strongly agree." This indicates a shared positive impression across respondent groups, affirming that the application's content is highly relevant as a digital review tool aligned with the objectives of the Licensure Examination for Teachers (LET)

Review Course. The low standard deviation values, all within the acceptable ±2SD range, reflect consistency in responses and support the conclusion that the perceived relevance of the application is uniform across stakeholder groups.

Moreover, the mobile application was intentionally designed with offline functionality, making it highly accessible for students with limited internet connectivity, a common barrier in many local and rural areas. While it does not yet include specialized features for learners with visual or cognitive impairments, feedback from users highlighted the need to enhance readability and color contrast, which are important for accommodating diverse user needs. As Frymier and Shulman (2019) noted, perceived relevance is closely tied to students' motivation to study, and tools that enhance accessibility and inclusivity can further strengthen this engagement. In support, Surender (2021) emphasized the role of technology in developing problem-solving and critical thinking skills, while Amasha and Areed (2021) found mobile applications to be more effective than traditional methods in improving student outcomes, further validating the educational value of the app.

Table 6: Questions

Statements	Students			Lecturers			IT Experts		
	Mean	Interpr.	SD	Mean	Interpr.	SD	Mean	Interpr.	SD
a. The questions are comprehensive and complete.	4.40	Strongly Agree	0.74	4.83	Strongly Agree	0.41	4.50	Strongly Agree	0.58
b. The questions are comprehensive and complete.	4.37	Strongly Agree	0.74	4.83	Strongly Agree	0.41	4.50	Strongly Agree	0.58
c. The questions are based on the given lectures within the Digital Review Material.	4.39	Strongly Agree	0.71	5.00	Strongly Agree	0.00	4.75	Strongly Agree	0.50
d. The questions are accurate.	4.42	Strongly Agree	0.75	4.83	Strongly Agree	0.41	4.50	Strongly Agree	0.58
e. The questions exact the purpose.	4.43	Strongly Agree	0.71	4.83	Strongly Agree	0.41	4.50	Strongly Agree	0.58
f. The difficulty of the questions is matched with their purpose.	4.38	Strongly Agree	0.75	5.00	Strongly Agree	0.00	4.75	Strongly Agree	0.50
g. The questions reflect the content of the course.	4.46	Strongly Agree	0.74	4.83	Strongly Agree	0.41	4.25	Strongly Agree	0.50
h. The questions initiate HOTS or higher thinking order skills among the users	4.49	Strongly Agree	0.72	4.83	Strongly Agree	0.41	4.25	Strongly Agree	0.50
Grand Weighted Mean	4.42	Strongly Agree	0.73	4.87	Strongly Agree	0.31	4.50	Strongly Agree	0.54

Table 6 presents the evaluation of respondents on the questions incorporated in the mobile application. The computed values for grand mean are 4.42 with an interpretation of "strongly agree" and standard deviation of 0.73 for the students, 4.87 with an interpretation of "strongly agree" and standard deviation of 0.31 for the lecturers and 4.50 with an interpretation of "strongly agree" and standard deviation of 0.54 for the IT experts. With all the values computed for the grand mean, the respondents expressed "strongly agree" on the benchmark statements relative to the nature of questions that were incorporated into the mobile application. With the values of standard deviation, it is notable that the responses of the respondents manifest clear uniformity and are compactly contained near the mean. This suggests that the respondents arrived to an agreement to what the benchmark statements describe regarding the good qualities of the questions.

One unrelenting concern is the capability of the questions to initiate higher order thinking skills. Higher Order Thinking Skills (HOTS) is a concept of education reform based on the Bloom's Taxonomy. The concept concentrates on student understanding in the learning process based on their own methods. HOTS questions are able to train students to think creatively, critically, and innovatively (Ping, Ahmad, Adnan & Hua, 2017). Higher order thinking skill is defined as the use of mind broadly to construct or find something unique. Higher order thinking skill is to think at a higher level rather than merely memorize the fact and telling someone the information exactly as it is said.

Table 7: Choices

Statements	Students			Lecturers			IT Experts		
	Mean	Interpr.	SD	Mean	Interpr.	SD	Mean	Interpr.	SD
a. The set of choices includes plausible distractors.	4.29	Strongly Agree	0.80	4.50	Strongly Agree	0.84	4.00	Agree	0.82
b. Choices promote HOTS or Higher Order Thinking Skills	4.49	Strongly Agree	0.70	4.67	Strongly Agree	0.52	4.00	Agree	0.82
c. The placement of the correct answer is balanced.	4.38	Strongly Agree	0.76	4.67	Strongly Agree	0.82	4.00	Agree	0.82
d. Choices are precise.	4.37	Strongly Agree	0.77	4.83	Strongly Agree	0.41	4.75	Strongly Agree	0.50

e. Choices length are well-adjusted.	4.37	Strongly Agree	0.75	4.67	Strongly Agree	0.52	4.50	Strongly Agree	0.58
f. Right answers are related to the questions.	4.43	Strongly Agree	0.76	4.50	Strongly Agree	0.84	4.50	Strongly Agree	0.58
g. The choices are effective to their purpose.	4.46	Strongly Agree	0.72	5.00	Strongly Agree	0.00	5.00	Strongly Agree	0.00
h. The choices exhibit no pitfalls.	4.33	Strongly Agree	0.77	4.33	Strongly Agree	0.52	4.50	Strongly Agree	0.58
Grand Weighted Mean	4.39	Strongly Agree	0.75	4.65	Strongly Agree	0.56	4.41	Strongly Agree	0.59

The above table shows the evaluation of the respondents on choice conciseness, as presented by the benchmark statements. The computed grand means are 4.39 with an interpretation of "strongly agree" and standard deviation of 0.75 for the students, 4.65 with an interpretation of "strongly agree" and standard deviation of 0.56 for the lecturers and 4.41 with an interpretation of "strongly agree" and standard deviation of 0.59 for the IT experts. It is clear that all the groups among the respondents expressed strong agreement on the itemized benchmark statements under the category of choices. This means that the choices are of good qualities based on what the parameters indicated. Moreover, the computed standard deviations are all within the acceptable value of plus/minus 2SD which manifests the closeness of the responses around the mean showing therefore, that there is no significant nonconformity among the responses of the respondents congealing further that the choices satisfied the criteria specified by the benchmark statements.

Multiple-choice questions are a time-honored method for assessing the test takers. These assessments can reveal areas of strengths and weaknesses in examinees and training programs and can provide useful feedbacks for improvement. Appropriately designed multiple-choice questions result in an unbiased assessment that can test knowledge, comprehension, application and analysis (Gupta Williams & Wadwha, 2021). This means that HOTS requires a process of intellectual thinking skills (Zakaria, Ahmad & Rahman, 2021).

Table 8: Rationalizations

Statements	Students			Lecturers			IT Experts		
	Mean	**Interpr.**	**SD**	**Mean**	**Interpr.**	**SD**	**Mean**	**Interpr.**	**SD**
a. Correct answers are explained well why they are correct.	4.40	Strongly Agree	0.76	4.83	Strongly Agree	0.41	4.75	Strongly Agree	0.50
b. Rationalizations consist of adequate information about the correct answer.	4.42	Strongly Agree	0.74	5.00	Strongly Agree	0.00	4.50	Strongly Agree	0.58
c. Rationalizations are brief but inclusive.	4.42	Strongly Agree	0.72	5.00	Strongly Agree	0.00	4.75	Strongly Agree	0.50
d. Rationalizations exhibit justifying ideas about the correct answer.	4.43	Strongly Agree	0.72	5.00	Strongly Agree	0.00	4.50	Strongly Agree	0.58
e. Rationalizations are congruent to the questions and answers.	4.42	Strongly Agree	0.72	5.00	Strongly Agree	0.00	4.50	Strongly Agree	0.58
f. Rationalizations widen the user's understanding about certain concepts.	4.42	Strongly Agree	0.72	5.00	Strongly Agree	0.00	4.75	Strongly Agree	0.50
g. Rationalizations are comprehensive.	4.44	Strongly Agree	0.71	4.67	Strongly Agree	0.52	5.00	Strongly Agree	0.00
h. Rationalizations show valuable information about the concepts.	4.45	Strongly Agree	0.71	4.83	Strongly Agree	0.41	4.50	Strongly Agree	0.58
Grand Weighted Mean	4.43	Strongly Agree	0.73	4.92	Strongly Agree	0.17	4.66	Strongly Agree	0.48

The table above shows the evaluation of respondents on the rationalizations. Rationalizations are a portion of the content where the correct answers are justified. The computed values for the grand mean are 4.43 with an interpretation of "strongly agree" and standard deviation of 0.73 for the students, 4.92 with an interpretation of "strongly agree" and a standard deviation of 0.17 for the lecturers and 4.66 with an interpretation of "strongly agree" and standard deviation of 0.48 for the IT experts. By the values of the grand mean, it is clear that the respondents have expressed positive impressions on the qualities of the rationalizations, which in general means that, these rationalizations provided comprehensive and justifying ideas relevant to the correct answers.

That being said, based on the values of standard deviation among the groups, which are within the acceptable value of plus/minus 2SD, the sameness of answer was explicitly demonstrated as the responses were closely grouped together near the mean showing strong agreement by the groups towards the qualities provided by the benchmark statements regarding the rationalizations.

In a developed student discourse observation tool by Melhuish and Fagan (2019), teachers were supported in noticing and promoting student justifying and generalizing skills. It was also argued that the tool provides both an important focusing lens for teachers and a means to concretize the abstract activities of justifying and generalizing. This means that upon introducing new concept to learners, it is important to provide necessary information to widen their understanding.

Difference Between the Evaluation by the Respondents of the Mobile Application's Basic Features and Contents

Table 9: Difference on the Evaluation of the Respondents on the Mobile Application's Basic Features

App Basic Features	F	Sig.	Interpretation
Ease of Use	0.931	0.396	Not Significant
Efficiency	1.185	0.308	Not Significant
Appropriateness	0.746	0.475	Not Significant
Appeal	0.898	0.409	Not Significant

The data shows that there is no significant difference in the evaluation of the respondents in all app basic features of review material mobile application with the significance value of 0.396 in ease of use, 0.308 in efficiency, 0.475 in appropriateness and 0.409 in appeal.

All significance values are above 0.05, therefore, the study failed to reject the null hypothesis. With this, there is no significant difference in the evaluation of the respondents in terms of Basic Features, which are ease of use, efficiency, appropriateness and appeal. According to Demir and Akpinar (2018), in their study about mobile application, respondents confirmed that user experiences were the deciding factor in the successful prototype designing of a mobile application in education. In order to get an excellent user experience, a user should feel comfortable with gadget interaction and feel smart enough to accomplish any task with intuitive use, without any tutorial or additional help.

In addition, the key attributes that define a successful mobile app are functionality, reliability, flexibility, accessibility, portability, efficiency, maintainability, functionality, and responsiveness, all of which should be iterated in accordance with the needs of the users, as well as the quality standards stipulated in ISO 9126 (Flora, Wang & Chande, 2014).

Table 10: Difference on the Evaluation of the Respondents on the Mobile Application's Content

App Content	F	Sig.	Interpretation
Relevance	2.212	0.112	Not Significant
Questions	1.537	0.217	Not Significant
Choices	0.668	0.514	Not Significant
Rationalization	2.084	0.127	Not Significant

The data shows there is no significant difference in the evaluation of the respondents in all app content parameters of review material mobile application with the significance value of 0.112 in relevance of the content as a review material, 0.217 in questions incorporated in the mobile application, 0.514 in choices and 0.409 in rationalization after the question in the mobile application. All significance values are above 0.05, therefore, the study failed to reject the null hypothesis. Hence, there is no significant difference on the evaluation of the respondents in terms of Mobile Application Content which are relevance, questions, choices and rationalizations.

The importance of expanding the educational process to continuous and lifelong learning via mobile learning cannot be overestimated. The technology is swaying almost everything in the world from the past few decades. In the past, education was only linked with money. With time, things have changed, and there has been an innovation in the education system around the world. The world has witnessed a revolutionary way to impart education. This system of education has changed with the invention of mobile educational apps. It has accommodated a new pattern of learning (Sharma, 2019).

Additionally, it has been utilized to boost the interactivity of the typical classroom, to raise the student's level of thinking through the use of educational mobile application, and to gather situational information such as what might be observed during fieldwork investigations. Additionally, handheld devices have been utilized for a variety of applications, including language instruction, music education, student reminders and personal time management, work-related training, and lifelong learning. Each of these approaches is based on a distinct type of handheld device technology (Sung, Chang & Liu, 2016).

Problems Encountered by the Respondents in Utilizing the Digital Review Material

Table 11: Problems Encountered in terms of Responsiveness

Statements	Students			Lecturers			IT Experts		
	Mean	Interpr.	SD	Mean	Interpr.	SD	Mean	Interpr.	SD
a. The application does not work on non-android handsets.	1.54	Strongly Disagree	0.68	1.67	Strongly Disagree	0.52	4.25	Strongly Agree	0.50
b. The application does not open immediately.	1.62	Strongly Disagree	0.73	1.50	Strongly Disagree	0.55	1.00	Strongly Disagree	0.00
c. The application runs slowly.	1.67	Strongly Disagree	0.74	1.50	Strongly Disagree	0.55	1.00	Strongly Disagree	0.00
d. The application does not respond according to commands.	1.66	Strongly Disagree	0.72	1.67	Strongly Disagree	0.52	1.00	Strongly Disagree	0.00
e. The buttons in the application do not perform their functions.	1.56	Strongly Disagree	0.69	1.67	Strongly Disagree	0.52	1.00	Strongly Disagree	0.00
Grand Weighted Mean	1.61	Strongly Disagree	0.71	1.60	Strongly Disagree	0.53	1.65	Strongly Disagree	0.10

The computed grand means are 1.61 (SD = 0.71) for students, 1.60 (SD = 0.53) for lecturers, and 1.65 (SD = 0.10) for IT experts, all interpreted as "strongly disagree." These low mean values consistently suggest that the respondents did not experience significant problems with the responsiveness of the mobile application across various Android handset versions. The relatively low standard deviation values—well within the ±2 SD threshold—further indicate that the responses were closely clustered around the mean, reinforcing the internal consistency of the respondents' perceptions. Most notably, the IT experts exhibited an exceptionally low standard deviation of 0.10, suggesting uniformity in their responses and confirming a unanimous view that the application performed responsively across tested Android devices.

A lecturer echoed this sentiment, stating, "There are no problems encountered, but I suggest that you add badges to engage and motivate students. This application is a great innovation and very helpful for the students." Such feedback underscores both the functional strength and the potential for improved engagement features.

However, one critical issue emerged from the benchmark statement (a), "The application does not work on non-Android handsets," which garnered a mean rating of 4.25 from IT experts, indicating strong agreement. This suggests that during their evaluation, the IT experts attempted to run the application on iOS devices but were unsuccessful. A student further confirmed this limitation by stating, "Apple users can't download it," while another noted, "The app runs smoothly, but there are issues that the app is not working on iOS." These remarks highlight a significant constraint in the application's cross-platform compatibility, limiting its accessibility to Android users only.

From a technical perspective, this issue arises due to the inherent differences between mobile operating systems. As Sheikh et al. (2013) emphasize, selecting a mobile platform—Android or iOS—requires an understanding of their distinct software environments, which likewise impacts application development. Supporting this, Latif et al. (2016) observed that developing for multiple mobile platforms is increasingly complex and resource-intensive due to the divergent development tools and environments.

Despite this limitation, the overall user experience appears favorable. One student remarked, "I do not encounter any problems while navigating the digital review material. I am just amazed with its whole content," while another affirmed, "Nothing—the application is doing well." These affirmations suggest that within the Android ecosystem, the application is already delivering significant educational value.

To address the identified issue and align with current trends in mobile learning, it is strongly recommended that future iterations of the application include iOS compatibility to ensure inclusivity for all users regardless of device. Additionally, based on user suggestions and pedagogical opportunities, future updates may integrate gamification elements, such as achievement badges to foster learner motivation. The inclusion of supplementary materials—such as video tutorials, interactive quizzes, or progress tracking features—would further enrich the learning experience and enhance user engagement. Leveraging cross-platform development frameworks, such as Flutter or React Native, could facilitate this expansion while maintaining a unified codebase, thereby reducing development costs and complexity.

Table 12: Problems Encountered in terms of Interface Adjustability

Statements	Students			Lecturers			IT Experts		
	Mean	Interpr.	SD	Mean	Interpr.	SD	Mean	Interpr.	SD
a. The application does not fit the user's handset's screen size.	1.48	Strongly Disagree	0.58	1.33	Strongly Disagree	0.52	1.00	Strongly Disagree	0.00

b. The application displays imbalanced placement of screen details.	1.52	Strongly Disagree	0.58	1.33	Strongly Disagree	0.52	1.25	Strongly Disagree	0.50
c. The application exhibits missing details.	1.50	Strongly Disagree	0.58	1.33	Strongly Disagree	0.52	1.50	Strongly Disagree	1.00
d. The placement of buttons is inappropriate.	1.52	Strongly Disagree	0.58	1.50	Strongly Disagree	0.55	1.25	Strongly Disagree	0.50
e. The color combination makes reading harder to users.	1.55	Strongly Disagree	0.55	1.67	Strongly Disagree	0.52	2.25	Disagree	1.89
Grand Weighted Mean	1.51	Strongly Disagree	0.57	1.43	Strongly Disagree	0.53	1.45	Strongly Disagree	0.78

The above table presents the evaluation of the respondents on the interface adjustability of the mobile application. The computed grand means are 1.51 (SD = 0.57) for students, 1.43 (SD = 0.53) for lecturers, and 1.45 (SD = 0.78) for IT experts, all of which fall under the interpretation of "strongly disagree." These values indicate that users across all groups did not encounter any significant difficulties regarding the application's interface responsiveness or adaptability. Moreover, the low standard deviation values, well within the acceptable ±2 SD threshold, indicate that responses were closely grouped around the mean. This statistical consistency reflects a strong uniformity in the respondents' perceptions, suggesting that the interface performed reliably across a variety of devices.

One student affirmed, "In the interface adjustability, there is no problem with my mobile phone," implying that the application successfully adapts to various screen sizes and resolutions. This adaptability is crucial given that screen size has been recognized as a significant factor affecting mobile application usability. According to Hujainah et al. (n.d.), small screens can compromise user satisfaction, especially when applications do not scale appropriately. Hence, the mobile application's ability to accommodate different Android handset dimensions contributes positively to user experience.

However, feedback also pointed out specific areas for improvement, particularly in visual design. A lecturer noted, "The blue color of the explanation/rationalization part is a bit dark for me and it does not contrast with the black font color," suggesting a need for better color contrast to enhance readability. Similarly, a student commented, "There's no problem with background colors. I think the fonts need to change for those students who have concerns with their eyesight." These insights highlight that while general adjustability is adequate, the visual accessibility aspects, such as font size, color contrast, and text clarity, require refinement.

To build on the positive evaluations and address highlighted concerns, it is recommended that future updates incorporate a customizable interface theme. This could include options for high-contrast modes, adjustable font sizes, and color-blind-friendly palettes. Implementing such features would ensure broader accessibility, particularly for users with visual impairments. Additionally, developers may consider incorporating responsive design principles that dynamically adjust visual elements based on both screen size and user preferences. Regular usability testing with diverse groups of users can also guide continuous visual optimization, aligning with both emerging technologies and inclusive design principles.

In conclusion, the interface adjustability of the mobile application received strong validation from users, with minimal reported concerns. Nonetheless, refinements in color contrast and font design, rooted in accessibility best practices—are essential to further enhance the application's usability and inclusivity.

Table 13: Problems Encountered in terms of Content

Statements	Students			Lecturers			IT Experts		
	Mean	Interpr.	SD	Mean	Interpr.	SD	Mean	Interpr.	SD
a. The mobile application consists non-challenging questions.	1.75	Strongly Disagree	0.65	1.33	Strongly Disagree	0.52	2.25	Disagree	0.50
b. All items show explanations about the correct answers	1.55	Strongly Disagree	0.69	2.33	Disagree	2.07	2.25	Disagree	1.50
c. The mobile application displays wrong answers rather than right answers.	1.71	Strongly Disagree	0.68	1.33	Strongly Disagree	0.52	1.00	Strongly Disagree	0.00
d. The application exhibits misspelled words.	1.73	Strongly Disagree	0.68	1.67	Strongly Disagree	0.52	1.75	Strongly Disagree	0.96
e. The application does not display user's scores.	1.82	Disagree	0.70	2.00	Disagree	1.55	1.25	Strongly Disagree	0.50
Grand Weighted Mean	1.71	Strongly Disagree	0.68	1.73	Strongly Disagree	1.04	1.70	Strongly Disagree	0.69

The computed grand weighted means were 1.71 (SD = 0.68) for students, 1.73 (SD = 1.04) for lecturers, and 1.70 (SD = 0.69) for IT experts, all of which fall under the interpretation of "strongly disagree." These results suggest that respondents generally did not encounter any significant problems with the content organization and delivery of the mobile application. As

supported by the standard deviation values, all fall within the statistically acceptable ±2 SD range, indicating that responses were relatively consistent and closely clustered around the mean. Although the standard deviation for the lecturers' group exceeded ±1 SD, it still remained within the acceptable margin, reinforcing a moderate level of variability but not enough to denote inconsistency.

A student affirmed, "The contents are well-organized, so there's nothing to raise as an issue," emphasizing that the application presents its learning materials in a coherent and accessible manner. However, specific limitations were noted that warrant further attention and improvement.

One recurring concern among all respondent groups pertains to the absence of immediate score visibility after completing assessments. A student shared, "It doesn't show the total scores you got when you're done answering all the questions," while an IT expert and a lecturer respectively echoed, "The scores and other details about the course to take," and "No score was displayed when a test is finished." These observations highlight the necessity of integrating automated feedback mechanisms that display assessment results upon test completion.

Providing score feedback is not merely a convenience, it has pedagogical value. As noted by Stan (2012), scores exert a strong motivational influence on learners, often reinforcing their engagement with the educational content. Similarly, IvyPanda (2020) underscores that scores can serve as predictors of academic success and help educators formulate targeted strategies to enhance motivation and learning outcomes. In the context of a mobile application, this translates into empowering users to track their progress, identify gaps, and maintain their engagement with the learning process.

Another point raised by a lecturer was the absence of explanations for certain assessment items: "There are items that do not explain the correct answers." This observation brings attention to the importance of incorporating rationales or explanations alongside each item—especially in formative assessments. Doing so allows users not only to recognize their errors but to understand why an answer is correct. As suggested by Best Way to Do Test Corrections (n.d.), meaningful correction fosters deeper learning and helps students reconstruct knowledge based on accurate understanding.

Beare (2020) further argues that timely and thoughtful correction enhances confidence and comprehension. When students can independently review their performance and learn from their mistakes, supported by immediate feedback through an application, they develop metacognitive skills essential for self-regulated learning.

To address these identified issues, it is recommended that future versions of the mobile application incorporate immediate score reporting upon test submission, along with detailed explanations for each correct answer. This will not only enhance the educational value of the application but also foster learner autonomy and sustained engagement. Developers may consider adding a performance dashboard or feedback history feature, allowing users to monitor their growth over time. Additionally, integrating adaptive feedback tailored to the learner's performance could further personalize the learning experience, making the application more pedagogically responsive and effective.

The Developed User's Guide in Utilizing the Digital Review Material

A user guide is a methodical document with a quite specific purpose, to help non-technical people pinpoint and solve problems without expert assistance. Since user guides decipher what is not understandable to a plain language for everyone to understand, they are vital in technical sectors and most commonly linked with software and hardware, IT systems, and electronic goods (Singh, 2017).

The developed user's guide in this particular study is composed of sixteen different steps from downloading to operating the mobile application. It also reflects writing and graphical demonstrations which provide written instructions and screenshots of the operations. Once a user downloads the app, the user's guide can be automatically downloaded as it is already embedded with the download link of the mobile application in a portable document format.

Numerous studies agree that visual learning helps users to better retrieve and remember information, which is why non-concrete and complex processes should always be demonstrated. Nevertheless, details may not be possibly understood by users when written and illustrated abstractly. The simplest narratives and figures should be utilized to convey the processes to be done by the users. Even though technical writers have always used infographics, diagrams, and tables to explain procedures that are difficult to understand, a great number of today's user guides are completely graphical. When we're making an online purchase or installing a piece of software, for instance, screenshots can help us way more than the descriptive language (Singh, 2017).

LIMITATIONS

The study was limited to the design, development, and usability evaluation of the mobile application and did not include the measurement of learning outcomes, such as test scores or retention rates. The application was developed exclusively for Android devices, which excluded iOS users and limited its accessibility. While the app was well-received, minor technical issues such as glitches, misspelled words, and the absence of automated score display were noted. Additionally, the study was conducted within a single academic institution—Rizal Technological University—which may limit the generalizability of findings. Although the app shows strong potential for scalability and adaptation to other subject areas or licensure examinations, these possibilities were not explored within the current research scope. Expanding the application for broader use, including multi-platform compatibility and subject-specific customization, is recommended for future development and investigation.

CONCLUSION

Based on the results, the researchers concluded that the ADDIE Model served as an appropriate framework for the development of the mobile application and can be applied to similar educational innovations. The mobile app was found to be user-friendly, effective in enhancing conceptual understanding, and responsive to the growing demand for technology-based instruction. Compared to traditional review methods—such as printed modules and in-person sessions—the mobile application offered a more flexible, accessible, and cost-efficient alternative. It addressed logistical challenges by enabling students to review anytime and anywhere, without the burden of physical materials.

Unlike other digital platforms that primarily offer practice drills, this application integrated questions, choices, and rationalizations designed to foster Higher Order Thinking Skills (HOTS), encouraging deeper learning and critical thinking.

Moreover, the application reflects the institutional identity and innovation efforts of the College of Education at Rizal Technological University by promoting a paperless, sustainable learning environment. However, despite its promising potential, several limitations were observed. The application was compatible only with Android devices, limiting accessibility for users with other operating systems. Users also noted glitches in some command buttons, visual discomfort due to color combinations, missing score displays after test sets, and occasional misspellings within the content. While these technical issues require refinement, the overall feedback from pre-service teachers, IT experts, and review lecturers was positive. Compared to conventional review strategies, the mobile application demonstrated greater interactivity and accessibility, marking it as a viable tool for modern teacher education.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

CONTRIBUTIONS OF INDIVIDUAL AUTHORS

Balbin: Conceptualization, design, data acquisition, analysis and writing.
Quendangan: Data acquisition, data analysis and supervision.
Buraga: Correspondence, editing, data analysis, concept and design.

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