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Series 2025

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Preface

Pioneering Educational Perspectives: Series 2025 is a collection of thought-provoking insights and research contributions exploring contemporary educational trends and practices. This eBook presents a diverse range of perspectives on innovative teaching methodologies, digital learning strategies, and transformative approaches in education. Designed to serve as a resource for educators, researchers, and practitioners, it aims to inspire meaningful discussions and advancements in the field. Through carefully curated chapters, this publication offers fresh ideas and practical solutions to enhance learning experiences in an ever-evolving educational landscape.

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EDUGO

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ABSTRACT

EduGO is an innovative educational app designed to address the challenges students face in accessing high-quality learning materials in Mathematics. Many existing platforms provide only one kind of learning materials, resulting in a fragmented and insufficient learning experience that hinders effective learning. EduGO aims to solve this problem by developing a user-friendly platform that integrates all the educational materials, including lecture notes, mind maps, tutorial exercises, past-year questions and instructional videos. Besides, EduGO provides an interactive Q&A section to promote peer-assisted and collaborative learning within the supportive community. Moreover, EduGO applied Augmented Reality (AR) technology to create interactive quiz experiences that gamified the learning and enhanced students' engagement. EduGO stands out by streamlining access to these resources, making it easier for all Matriculation students in Malaysia to navigate and engage with the Mathematics contents. The unique combination of comprehensive learning materials, AR technology, and a Q&A section projecting EduGo far apart compared to existing educational platforms. EduGO's zero-cost innovation ensures that high- quality educational resources are accessible to all students, supporting the United Nations' Sustainable Development Goal (SDG) 4 for inclusive and equitable quality education. By leveraging technology, EduGO created a cohesive, accessible and convenient platform, significantly improving student learning experiences.

KEYWORDS: EduGo, educational app, Augmented reality (AR), Gamified, Learning experiences

PROBLEM AND OBJECTIVE

In today's educational landscape, technology has become an integral part of daily life, reshaping how students learn and engage with information. However, challenges remain, particularly in ensuring that all students have access to high-quality learning materials in Mathematics. The main challenge faced by Perak College Matriculation's students is the scarcity of materials due to the existing platforms usually providing only one kind of learning materials that may lack variety and fail to cover the content of Mathematics comprehensively, resulting in a fragmented and insufficient experience. Swan and Ice (2010) highlighted that access to comprehensive and varied educational resources is critical for effective learning. Inadequate materials can lead to a disjointed learning experience, where students struggle to find coherent and comprehensive resources that cover the subject matter thoroughly. This unstreamlined access to learning materials, wasted the student's time, inconvenienced, and hindered astudents' effective learning. Hew and Brush (2007) discussed how fragmented resources often fail to provide a cohesive learning experience, resulting in inefficiencies and difficulties in mastering complex subjects. This fragmentation often leads to wasted time and increased frustration among students, who are forced to piece together information from various sources.

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Therefore, EduGo's first aim is to develop a user-friendly educational app that ensures the students can easily navigate the platform and access comprehensive learning materials and enhance effective learning experiences, all within a single, streamlined interface. Secondly, EduGo's aim is to provide students with new learning experiences by integrating Augmented Reality (AR) technology in the content of the topic Function and Graphs to enhance student engagement and improve knowledge retention.

DESIGN DESCRIPTION

The instructional design model used in this innovation is ADDIE. EduGo is an educational app integrates all the educational materials (lecture notes, mind maps, tutorial exercises, past-year questions, instructional videos) together with Augmented Reality (AR) technology (interactive quiz experiences) and followed by an interactive Q&A section to streamline access for these resources, making it easier for all Matriculation students in Malaysia to navigate and engage with the Mathematics contents.

EduGo's interface consists of 4 major sections which are Notes, Vidoes, AR Quizzes, and QnA for 10 topics under the Matriculation Science Mathematics Syllabus. First of all, the Notes section in EduGO features concise one-page notes that allow students to quickly review key concepts from mind maps/concept maps/graphic organizers, saving time and helping students to structure and visualize information in a way that enhances understanding and retention. By visually organizing information, students can better grasp complex concepts and see the big picture. This can make abstract ideas more concrete and accessible. So the Notes section serves as effective study tools, offering a condensed visual summary of the material that is easier to review and recall. Besides, EduGO also provides a comprehensive collection of materials for each topic, including detailed lecture notes for in-depth understanding, tutorial exercises for guided practice, and past-year questions for exam preparation. This section is designed to ensure that students have

the resources they need to study effectively and cater to different learning preferences.
The Videos section in EduGO is designed for multisensory input and demonstrations for students to enhance learning with visual and auditory aids. Each topic is paired with relevant video links that offer explanations and demonstrations, helping to clarify complex concepts and keeping students engaged with this dynamic and replayability contents and hence providing an alternative to traditional educational materials and tutoring.

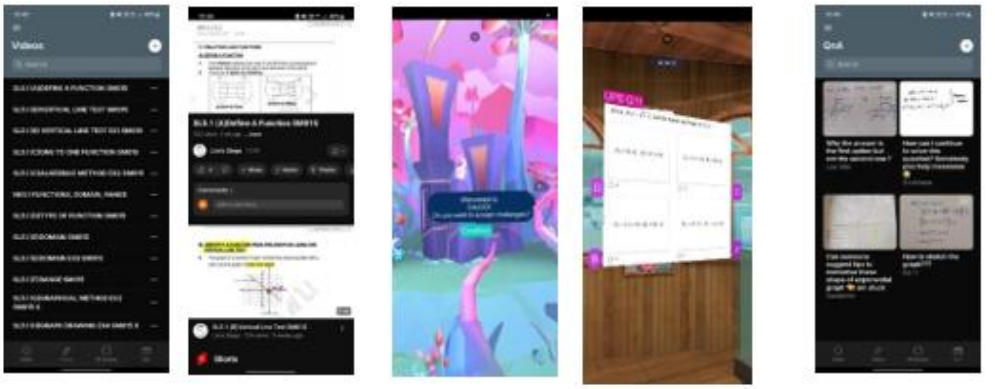
Bower et al. (2014) argue that AR can create immersive and interactive learning experiences, which are particularly beneficial in subjects requiring visualization of complex concepts, such as mathematics. Therefore, EduGO applies AR technology into AR Quizzes section to introduce a dynamic and immersive way to make learning gamified and more engaging. This 3D visualization and interactive approach can capture students' attention and make learning more enjoyable, promoting physical activity that tackles problems of sedentary lifestyle by encouraging students to move around while completing quizzes.
Last but not least, the Q&A section in EduGO fosters peer-assisted and collaborative learning within the supportive community. This peer-assisted approach enhances academic performance and makes the learning process more interactive.

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VISUALS



EduGo's App Interface Notes Interface



Videos Interface AR Quizzes Interface QnA Interface

NOVELTY AND UNIQUENESS

EduGO is designed to be user-friendly offering accessibility across a diverse range of platforms and conditions. EduGO is available on iOS and Android devices, as well as through a web version for desktop users, ensuring seamless access whether on a smartphone, tablet, or computer.

EduGo stands out with its unique combination of comprehensive mathematics learning materials, cutting-edge AR quizzes gaming, and an interactive Q&A section—features not found together in any existing educational platform.

EduGo is pioneering as the first educational app developed online with AR technology that supports a variety of learning styles through game-based learning, online learning, and self-access features, offering flexibility and real-time feedback and guidance. Furthermore, EduGo offers mobility, making it an application that can be taken anywhere, ensuring continuous and flexible learning opportunities.

As a non-profit initiative, EduGo is a zero-cost project designed to provide students with access to high-quality educational resources without any financial burden. By eliminating costs, EduGo ensures that comprehensive learning materials, innovative AR features, and interactive tools are available to all users, promoting equitable access to education.

BENEFITS TO MANKIND

EduGo received overwhelmingly positive feedback across all Technology Acceptance Model (TAM) variables established by Davis (1989), based on 75 responses. The highest favor from responses was, "Overall, the EduGo helps me perform better in my studies" and "I enjoy using

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EduGo for studying and managing my learning materials". These responses underscore EduGo's potential as a sustainable and innovative educational app that effectively addresses students' challenges in accessing high-quality Mathematics learning materials. Furthermore, EduGo supports an eco-friendly, paper-free environment, and has the potential to influence educational practices and policies on a global scale.

COMMERCIAL POTENTIAL

EduGo is a user-friendly educational mobile learning application which is readily downloaded from google play and the price is free. The features in EduGo such as well-organized comprehensive learning materials, instructional videos, Augmented Reality (AR) Quizzes and Q&A section, capture users' attention effectively and fulfill market's demand which will then contribute to the app's longevity and success in the market. Therefore, EduGo has the significant market potential to be widely disseminated to other matriculation colleges, A-level and Form 6 programmes in Malaysia so that all educators and students can benefit from this innovation.

CONCLUSION

EduGO effectively addresses the challenges of accessing comprehensive Mathematics resources by offering a unified platform with lecture notes, mind maps, tutorial exercises, past-year questions, instructional videos, and a peer-supported Q&A section. Its innovative integration of Augmented Reality (AR) for interactive quizzes enhances student engagement and knowledge retention, providing a cohesive and user-friendly learning experience, setting it apart from existing platforms. By providing these resources at no cost, EduGO supports the United Nations' Sustainable Development Goal 4 for inclusive and equitable quality education. Future developments could include expanding the platform to cover additional subjects, incorporating adaptive learning technologies for personalized educational experiences, and forming partnerships with educational institutions to broaden its impact and accessibility. These developments could further enhance EduGO's role in providing innovative and accessible education solutions.

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