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PIONEERING EDUCATIONAL PERSPECTIVES

Series 2025

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Chief Editors:
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Muhammad Irfan bin Mokhtar

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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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ED-STAT: OPTIMIZING TEACHING AND LEARNING OF INTRODUCTION TO STATISTICS

Muhammad Zulkhairi Zakariah[1*], Akmal Shafiq Badarul Azam[2], Muhammad Shahimi Ariffin[3], Muhammad Anas Abdul Razak[4] & Mohd Zuhaili Kamal Basir[5]

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ABSTRACT

Teaching and learning (T&L) methodologies have changed as a result of technology integration in the classroom, especially in the area of statistics. Introduction to Statistics (STA104) is mandatory for most Universiti Teknologi MARA (UiTM). While PowerPoint is still relevant and frequently used for its ordered presentations and visual aids, it lacks interactivity, which can dramatically improve student engagement and retention. The goal of this study is to create Ed-Stats utilizing EdAPP, an innovative teaching software, in order to improve student engagement and learning results in the STA104 course. Ed-Stats stands out from typical tools because it integrates gamification and interactive components. EdApp as an educational tool is uncommon, especially in statistics education. This project intends to integrate interactive learning modules on Ed-Stats to promote student engagement and interest in statistics-related topics, which have improved based on Mentimeter's findings. Using Ed-Stats' accessibility and user-friendly interface, instructors may develop and share content targeted to individual courses. This program fills a vacuum in the present interactive teaching tool landscape and establishes a precedent for educators to collaborate on content production using EdApp.

KEYWORDS: Ed-Stats, Interactive learning, Student engagement, Statistics education

PROBLEM AND OBJECTIVE

"Introduction to Statistics" (STA104) is a mandatory course for most programs at Universiti Teknologi MARA (UiTM). For the first chapter of STA104, students will be exposed with terminologies and basic concepts of statistics, making the chapter to be text-heavy which can lead to boredom or losing focus among students. Teaching tools like Google Slides and PowerPoint are typically used by instructors to organize presentations, guaranteeing accurate content delivery and promoting information retention (Gupta et al., 2023). However, these tools have limitations. Lack of interactive elements can lower student interest, and a presentation's efficacy can be hampered by the presenter's failure to control pacing or properly follow the slide order (Xingeng & Jianxiang, 2011). Using digital assessment tools, such as Google Forms and Kahoot! has a favourable impact with increased efficiency, efficacy, and student involvement (Ramadhan & Inayati, 2024).

Launched in 2017, EdAPP is a unique teaching tool that offers a flexible platform that makes learning more enjoyable by fusing gamification features with presentation production. Although EdAPP has a lot of promise, teachers in Malaysia rarely use it in their classrooms

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instead choosing to use more accustomed programs like Google Slides and PowerPoint. The purpose of this project is to create and assess Ed-Stats, an interactive teaching tool created especially for UiTM's STA104 course. Ed-Stats uses gamified tests, interactive exercises, and real-time feedback to increase student engagement and improve learning results. In the end, Ed-Stats hopes to raise the bar for instructional resources and promote a more engaged and productive learning environment.
This Ed-Stats was developed to achieve the following objectives:

i. To act as an alternative teaching aid for the STA104 course.
ii. To improve student engagement through interactive learning elements integrated into Ed-Stats.
iii. To gauge students' reception and feedback on the usage of Ed-Stats as a learning tool.

DESIGN DESCRIPTION

Ed-Stats is compatible with PCs, tablets, and smartphones; the program adjusts its layout according on the type of device being used. The navigation of Ed-Stats slides can be tailored depending on the content, unlike PowerPoint or PDF slides where the user mostly scrolls down to read the contents. For instance, it is best to provide topic definitions via scrolling navigation, click and reveal for a definition of distinct term, and block comparison for comparing two different but related pieces of information.

VISUALS

Figure 1 below showcases the uses of different Ed-Stats navigation based on the suitability of information that must be delivered.



Figure 1. Ed-Stats Scrolling Navigation, Click & Reveal, Block Comparison

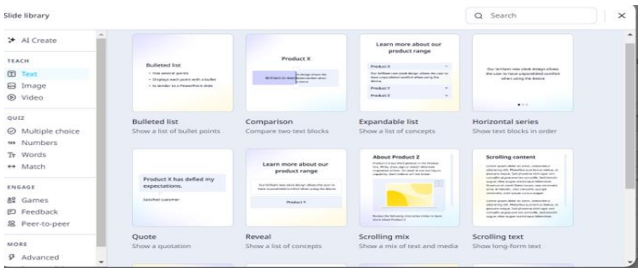


Figure 2. EdApp Slide Library

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The slide libraries shown in Figure 2 above allow content developers to experiment with different combinations of text, image, and video to create a wide range of content navigation. Gamification can also be combined with EdApp to help users pay more attention. Examples of gamification using EdApp are shown in Figure 3 below.

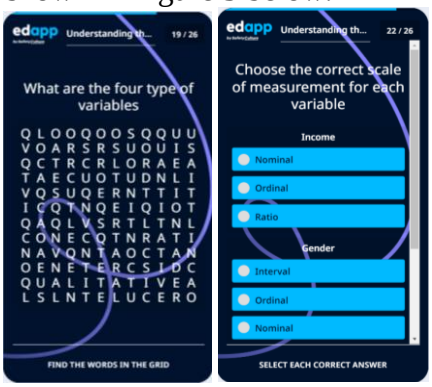


Figure 3. Ed-Stats Gamification

NOVELTY AND UNIQUENESS

EdApp as a teaching tool is something that is still rare in Malaysian classrooms. Furthermore, statistical education related topics is still not available in the EdApp database. Thus, Ed-Stats that was developed for this project is the first of its kind.

BENEFITS TO MANKIND

It is believed that through interactive learning of Ed-Stats, students' attentiveness and interest can improve considerably. This is because interactive learning that enables students to play and study conveniently and effectively may be more beneficial for them due to the fact, they spend most of their time with their gadgets (Cheung & Ng, 2021).

Subsequently, students were asked to describe their experience with Ed-Stats using the Mentimeter online application, a total of 50 responses were collected, as shown in Figure 4:

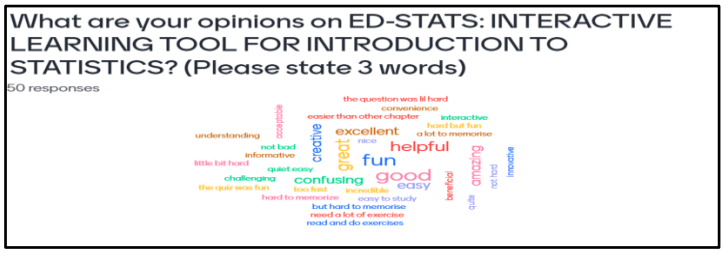


Figure 4. The Mentimeter Result

The positive feedback highlights the platform's effectiveness in improving student engagement and learning outcomes, aligning with the objectives of this study.

COMMERCIAL POTENTIAL

EdApp is a free platform that brings the potential for other educators to get hands-on experience for getting started on creating content on EdApp. In due time, complete content on the whole syllabus for Introduction to Statistics (STA104), and even other courses, will be possible through content sharing by other educators using EdApp.

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CONCLUSION

Ed-Stats represents a significant advancement in statistics education by combining interactive and gamified elements with traditional teaching methods, thus addressing the limitations of conventional tools. The novelty in the body of knowledge lies in Ed-Stats' unique combination of interactive and gamified learning elements with traditional presentation methods, offering a new paradigm for teaching complex subjects like statistics. Benefits on application of Ed-Stats for STA104 course at UiTM demonstrated increased student engagement and improved learning outcomes which can be traced from Mentimeter positive response, highlighting Ed-Stats as "helpful," "fun," and "good". Ed-Stats offers a practical approach that is simple to apply in classrooms, greatly enhancing student engagement and learning outcomes in the real world. Beyond just raising academic achievement, the advantages have significant business potential and might be widely adopted by a range of educational establishments. Ed-Stats is a viable approach for upgrading statistics education since it opens the door for improved learning experiences and increased information exchange among educators.

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