# Evaluating the Effectiveness of Edu Box SmartLearn in Fostering Student Engagement in Online Higher Education

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## ABSTRACT

As higher education increasingly adopts modern digital and flexible learning environments, educators face growing challenges in sustaining student engagement and fostering deep understanding particularly in conceptually demanding courses. The objective of this study is to evaluate the student learning experience, perceived usability and engagement associated with Edu Box SmartLearn, an interactive digital platform developed to support the teaching and learning of the course CDA20903 Directed Reading, offered under the Bachelor of Social Science (Anthropology and Da'wah) with Honours program via the 2U2H mode. Edu Box is designed to address the challenges of delivering complex topics such as Reading Theory and Critical Thinking Analysis in a digital setting by offering specialized content including animated videos and interactive games. The study employed a qualitative research methodology involving semi-structured interviews, classroom observations and Focus Group Discussions (FGD) with undergraduate students ($N = 15$) who utilized Edu Box as part of their semester coursework. The learning activities were structured around the Course Learning Outcomes (CLOs) and organized into three operational components: self-learning, reflection, and simulation. Qualitative thematic findings indicate a marked improvement in student engagement, peer interaction, learning motivation and perceived conceptual understanding. Students reported that the platform's streamlined assignment tracking and interactive features reduced procedural friction and facilitated a more interactive learning experience. In conclusion, Edu Box SmartLearn effectively addresses key usability and engagement limitations of conventional digital repositories, demonstrating potential as a user-friendly model for digital instructional support in higher education.

**Keywords:** Edu Box, SmartLearn, Digital Learning, Directed Reading

## INTRODUCTION

Fully online teaching has become the norm in higher education, especially after the COVID-19 pandemic. However, challenges such as low student engagement and deep understanding of complex concepts remain significant obstacles in these virtual learning environments (Limniou et al., 2022). When courses are delivered entirely online, students frequently encounter barriers related to isolation, lack of direct interaction, and difficulty maintaining concentration over extended periods.

Recent studies show that students' attitudes towards online learning, peer collaboration and psychological motivation play important roles in enhancing online engagement (Abdullah & Said, 2022). Furthermore, the use of digital technologies and interactive learning platforms has been identified as a promising strategy to increase students' interest, critical thinking skills, and emotional engagement with learning materials (Abd Halim et al., 2024; Tan et al., 2023). Transitioning away from passive content consumption toward dynamic digital interfaces helps bridge the gap between educators and learners in virtual classrooms.

Despite various studies supporting the use of interactive and multimedia elements, there is still a lack of an integrative model that encompasses self-learning, reflection and simulation aligned with Course Learning Outcomes (CLO). Many existing digital tools function merely as static document repositories rather than active pedagogical spaces. This limitation is particularly evident in conceptually demanding courses that require rigorous textual analysis and critical thinking.

To address this gap, Edu Box SmartLearn emerges as an educational innovation designed to provide specialized content such as animated videos and interactive games for challenging topics like Reading Theory and Critical Thinking Analysis within the context of a fully online Directed Reading course. By integrating administrative tracking, reference media repositories and gamified components into a unified interface, Edu Box seeks to transform the virtual learning experience and establish a scalable benchmark for digital educational tools in higher education.

# METHODOLOGY

### Research Design & Context

This study employed a descriptive qualitative research methodology to evaluate student learning experiences, platform usability, and engagement dynamics associated with Edu Box SmartLearn in a digital higher education environment. The research design was selected to obtain in-depth qualitative insights into student interactions, self-reported perceptions, and engagement patterns when utilizing the digital platform.

Learning activities on Edu Box were systematically structured around official Course Learning Outcomes (CLOs) across three operational components:

1. Self-learning: Independent student access to curated lecture notes, reference media and instructional video repositories.

2. Reflection: Structured engagement through digital comment sections, feedback prompts and assignment submissions.

3. Simulation: Interactive gamified tasks, automated deadline trackers and dynamic online mini-games used for quizzes and group management.

### Participants and Sampling

The evaluation was conducted with a purposive sample of 15 undergraduate students ($N = 15$) enrolled in the course CDA20903 Directed Reading under the Bachelor of Social Science (Anthropology and Da'wah) with Honours program via the 2U2H learning mode at Universiti Sultan Zainal Abidin. Participants utilized Edu Box as an integral component of their semester coursework to navigate complex theoretical topics specifically Reading Theory and Critical Thinking Analysis. Purposive sampling ensured that all participants had active, continuous interaction with the platform throughout the instructional term.

### Data Collection Procedures

To ensure methodological rigor and comprehensive data gathering, multiple qualitative instruments were triangulated:

- **Semi-Structured Interviews**: Individual interviews were conducted with selected informants (e.g., IR1, IR2, IR3, IR4, IR5) using an open-ended interview guide focusing on platform usability, technical accessibility, navigation ease, and overall learning experience.

- **Classroom Observations**: Digital classroom observations were conducted periodically across the semester to observe participation patterns, submission timeliness, interaction frequency within comment sections, and student responsiveness during gamified group selection tasks.

- **Focus Group Discussions (FGD):** Two focus group sessions were conducted with groups of 6–8 students to capture collaborative dynamics, shared learning experiences and collective feedback regarding platform functionality and perceived learning support.

**Data Analysis**

Qualitative data collected from interview transcripts, observation field notes, and FGD audio recordings were analyzed using thematic analysis following Braun and Clarke's framework. Transcripts were iteratively read to generate initial codes, which were then grouped into broader thematic categories reflecting system usability, interactive engagement, motivation, and practical educational value. Data triangulation across the three sources (interviews, observations, and FGDs) was performed to ensure credibility and trustworthiness.

**Ethical Safeguards & Technical Considerations**

Participation was strictly voluntary and all participants provided informed consent prior to data collection. Participant identities were anonymized using alphanumeric codes (e.g., IR1–IR5). Technical accessibility was ensured by hosting Edu Box on a cloud-based responsive web platform, enabling student access across mobile and desktop devices without specialized hardware requirements.

## FINDINGS

The evaluation of Edu Box within the Directed Reading course reveals critical insights into how interactive web-based platforms transform the learning experiences of undergraduate students in online higher education. Derived from semi-structured interviews, classroom observations, and focus group discussions, the qualitative findings demonstrate that the platform functions simultaneously as a streamlined administrative utility and an engaging pedagogical environment.

**Edu Box as a Systematic and User-Friendly Assignment Management Platform**

A primary finding from the participant interviews highlights the crucial role of Edu Box as an efficient system for assignment submission and management. Students and instructors benefit from a centralized platform that removes the administrative friction typically associated with virtual learning environments. As noted by informant IR 1:

“Edu-Box functions as a platform for students to submit assignments. It provides a very systematic channel for lecturers to review the tasks given. At the same time, students do not need to worry about how assignments should be submitted. They just need to download the application, and once they log in, they do not need to repeatedly access passwords.”



(IR1)

Figure 1: Edu Box SmartLearn website interface




Figure 2: Section for student assignment submission

Figure 1 and Figure 2 show the section where students can utilize Edu Box to submit all assignments for this course because it is seen as more effective and engaging. Students only need to click on the "Dropbox" section and upload their respective assignments.

This feedback indicates that streamlining technical procedures significantly reduces student anxiety surrounding digital submissions and procedural errors. From an organizational perspective, the platform functions as an orderly digital warehouse, allowing instructors to track, review and evaluate coursework efficiently. Complementing this, another participant emphasized the practical value of automated deadline tracking features:

“It is easy for us to upload assignments. We no longer feel confused about where to upload them. It also has reminders, so we become more alert about the submission dates.”

(IR 4)

These built-in alerts foster greater academic discipline and time management, helping students meet coursework requirements reliably. By removing technical and procedural ambiguity, the platform allows learners to direct their cognitive focus entirely toward academic performance and text analysis.

**Perceived Interactive Engagement and Flexibility of Learning**

Beyond administrative utility, participants identified Edu Box as a flexible and highly interactive learning space. The integration of multimodal resources enables students to revisit course materials beyond scheduled lecture times. Various course-related videos used by students for discussions and assignment references are uploaded on Edu Box by the lecturer. Students only need to open Edu Box and click on the video section to watch, as illustrated in Figure 3:




Figure 3: Example of reference video

An informant described this flexibility:

"There are many benefits. For example, we can revisit the notes there. Then we can rewatch the reference videos for revision and most importantly, we can play games inside it. Edu-Box is really the best."

(IR 2)

The capability for repeated access supports self-paced learning, allowing learners to review abstract reading theories and critical analysis tasks according to their individual needs. Furthermore, students can utilize the online games available in Edu Box to answer quizzes, select groups and determine the presentation order. Students find this method more engaging compared to manual selection methods, as shown in Figure 4:

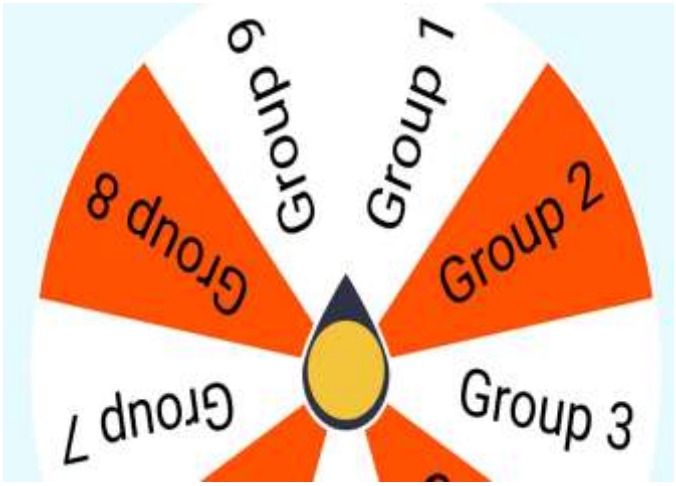



Figure 4: Example of a game in Edu Box SmartLearn

The inclusion of gamified elements mitigates the monotony often experienced in fully online courses. Another participant highlighted practical gamified tools embedded within the platform:

"There is also the 'Spin the Wheel' feature. It makes it easier for the group leader to decide the turn and select which student will present next."

(IR 4)

Automating presentation order selection introduces transparency and fairness to group activities while adding an element of enjoyment to classroom management. Another student noted the collaborative dimension of the platform:

"We can view the notes and videos uploaded by the lecturer. In addition, we can comment on parts that we do not understand, so it becomes quite interactive."

(IR 5)

This interactive commentary feature transforms passive content consumption into active, dialogic engagement, enabling students to pose questions, seek timely clarification and engage in academic discussions.

**Enhanced Learning Interest and Motivation**

A recurring theme across the qualitative data is the platform's capacity to heighten student enthusiasm and intrinsic motivation toward challenging coursework. Participants consistently described the platform as stimulating and engaging. As expressed by one informant:

"Regarding the Edu-Box platform, I find it very good and interesting. It helps me become more interested and more enthusiastic to learn." (IR 4)

This strong positive emotional response underscores the effectiveness of intentional instructional design in capturing learner attention. By replacing static text layouts with dynamic, multimedia-rich interfaces, Edu Box successfully cultivates a vibrant virtual classroom atmosphere that sustains long-term student participation in reading-intensive courses.

**Perceived Usefulness and Practical Value**

Students also emphasized the overall utility and convenience of the platform in easing academic responsibilities. Summarizing the general sentiment of the cohort, an informant noted:

"I would like to state that Edu-Box is a very useful platform for students, especially for submitting assignments easily. Alhamdulillah, this platform is very beneficial for students."

(IR 3)

This affirmation reflects widespread contentment with the system's practical value. By resolving common online learning hurdles such as scattered files, unclear submission instructions and lack of organization, Edu Box acts as a reliable support mechanism that enhances overall student satisfaction and academic persistence in higher education.

**Significance Of The Research**

The introduction of Edu Box SmartLearn offers multiple significant contributions to higher education in the fully online learning context. First, it addresses the urgent need to enhance student engagement, which is strongly linked to better academic outcomes. Research shows that digital learning platforms and interactive tools significantly raise student engagement and thereby improve academic performance (Wang, Cao, Xu, & Li, 2022; Alyoussef, 2023).

Second, by aligning self-learning modules, discussion prompts and interactive games with Course Learning Outcomes (CLOs), Edu Box offers a structured model to support student review of demanding course concepts. Interactive and student-centered approaches are recognized in higher education as useful components for supporting active learning and analytical engagement (Mohamad Fadzil et al., 2025; Nor Faizira Ashikin Zaiful Shah & Zuraimi Zakaria, 2024).

Third, the innovation responds to the demand for usable, motivating and accessible online education platforms. Platforms that provide multimedia content (e.g. animations, videos), real-time feedback and engaging formats are shown to improve learners' satisfaction, persistence and motivation in online courses (Wang et al., 2022)

Finally, Edu Box SmartLearn has implications for policy and institutional practice by providing a scalable model of online learning innovation. It offers a blueprint for how coursework can be transformed using interactive digital media and structured learning components, in an era where higher education must continuously adapt to technological change. This aligns with broader educational goals in Malaysia and globally to produce graduates equipped with critical thinking, adaptability, and ability to engage meaningfully in online learning environments (Mohamad Fadzil et al., 2025; Alyoussef, 2023).

**Impact Of Edubox Towards Education**

Edu Box SmartLearn demonstrates positive practical implications for digital instructional delivery by improving resource organization and task accessibility for students. Consolidating reference videos, assignment dropboxes, and discussion features within a central web interface allows students to access course materials flexibly regardless of location. Reducing technical hurdles in online submissions supports smoother course execution for both students and instructors, contributing to efforts aimed at improving digital course engagement in higher education programs.

## CONCLUSION

As conclusion, this study evaluated student perceptions and experiences with Edu Box SmartLearn in an online Directed Reading course. Edu Box SmartLearn demonstrates clear utility as an interactive learning support platform that enhances student engagement, learning motivation and platform usability in online higher education coursework. By integrating assignment submission tracking, reference media repositories and gamified interaction features, the platform effectively mitigates common procedural hurdles associated with online learning environments, providing an accessible and organized space for students exploring complex academic topics.

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