IMPLEMENTATION OF OUTCOME-BASED EDUCATION IN THE DESIGN OF DIGITAL INDONESIAN LANGUAGE TEXTBOOKS IN HIGHER EDUCATION

Muhammad Sabbardi, Subyantoro, Hari Bakti Mardikantoro, Rahayu Pristiwati
Faculty of Languages and Arts
Universitas Negeri Semarang
Semarang, Indonesia
msabbardi@students.unnes.ac.id

Abstract

The development of technology and the demands of the workforce have driven higher education institutions in Indonesia to adopt the Outcome-Based Education (OBE) approach. However, the integration of OBE into the design of digital Indonesian language textbooks has rarely been studied. This study aims to analyze the implementation of OBE in the development of digital textbooks and assess its effectiveness on student learning outcomes. The research uses a Research and Development (R&D) approach with the Dick and Carey model, as well as a mixed-methods approach combining qualitative and quantitative methods. The study subjects consist of 200 students and 20 lecturers. Data were collected through interviews, surveys, and document analysis. The results of the study indicate that OBE-based digital textbooks enhance student engagement, understanding of the material, and academic achievement. Interactive features in the textbook strengthen the outcome-based learning experience. However, challenges such as lecturers' digital literacy and adaptation to teaching methods still need to be addressed. The study recommends OBE and digital design training for lecturers, as well as adequate technological infrastructure support. OBE-based digital textbooks can serve as an innovative solution to improve the quality of Indonesian language learning in higher education.

Keywords – Outcome-Based Education, Digital Textbooks, Indonesian Language

Introduction

Over the past few decades, Indonesian higher education institutions have undergone dramatic changes due to the dominance of technological advancements and globalization. With more than 400 universities in Indonesia, they face the challenge of not only improving the quality of the curriculum but also meeting the demands of an increasingly complex and dynamic workforce (Moundy et al., 2022). One approach adopted is Outcome-Based Education (OBE), which focuses on the expected learning outcomes. OBE provides a clear framework for teaching and learning by establishing specific competencies that students must master by the end of a study program (Rahate et al., 2020). This approach becomes particularly relevant and important in the context of language learning, where the expected outcomes can include mastery of language skills that align with the needs of society and the workforce (Oleiwi, 2023).

In line with the advancement of digital technology, textbooks have undergone significant transformations. The digitalization of education has facilitated the integration of digital textbooks, which provide higher levels of interactivity and accessibility compared to conventional print materials (Lim et al., 2022). Beyond enriching learning content through multimedia, digital textbooks also foster autonomous learning approaches, enhance student engagement, and contribute to improved academic performance (Moundy et al., 2021). Accordingly, the integration of digital textbooks into higher education

curricula should be aligned with the principles of Outcome-Based Education (OBE) to ensure greater effectiveness in achieving the intended learning outcomes.

Furthermore, OBE serves as an essential foundation in higher education because it bridges the gap between theoretical knowledge taught and the practical skills required in the workforce. However, the challenge lies in how to design digital textbooks that not only present information but also support various outcome-based learning strategies (Mutiara & Emilia, 2022). This highlights the need for further research specifically investigating the application of OBE in the design of digital textbooks to ensure that these textbooks are relevant to the needs of learners and current developments in educational technology (Oleiwi, 2023).

In this study, we also identify a research gap in the existing literature. While many studies have explored OBE and the digitalization of education separately, research on the integration of OBE in the creation of Indonesian language digital textbooks for higher education is still limited. This study aims to fill that gap by exploring how OBE-based digital textbook design can improve Indonesian language learning outcomes in higher education. This is becoming increasingly urgent with the growing demand to adapt to innovative and technology-based learning methods (Ganapathy et al., 2022).

The novelty of this research is situated in the design of digital textbooks that explicitly integrate the principles of Outcome-Based Education (OBE). By embedding elements of educational technology within an outcome-oriented curriculum framework, the study aspires to formulate a textbook design model that is not only innovative but also adaptive to the dynamic needs of higher education. Such a model is envisioned to be applicable for lecturers and curriculum developers across diverse higher education institutions in Indonesia, thereby enhancing both the pedagogical process and the quality of learning outcomes (Mutiara & Emilia, 2022). In addition, the outcomes of this research are expected to generate substantial contributions, both practical and theoretical, by offering new insights into the development of curriculum design as well as providing empirical evidence that can inform institutional policies. These contributions are particularly significant for Indonesian higher education as it confronts the multifaceted challenges posed by globalization and the accelerating pace of digital transformation.

The primary objective of this study is to analyze the implementation of Outcome-Based Education (OBE) in the design of digital Indonesian language textbooks and to enhance their effectiveness in achieving optimal learning outcomes. Through this approach, the research is expected to facilitate continuous improvement in the harmonization of instructional content while simultaneously strengthening student engagement in the learning process (Rahate et al., 2020). Emphasizing the attainment of measurable learning outcomes within the context of digital textbooks constitutes a critical step toward advancing the quality of higher education in Indonesia.

Method
This study uses a Research and Development (R&D) approach to develop and disseminate an Outcome-Based Education (OBE) based digital Indonesian language textbook. The process of developing this digital textbook follows the Dick and Carey

design model, which consists of several stages. First, a needs analysis will be conducted to understand the competencies that students need to achieve within the context of OBE (Lim et al., 2022). Next, the researchers will develop clear and specific learning objectives, accompanied by relevant content to meet the expected learning outcomes. During the design phase, the researchers will create materials and interactive elements that support learning, such as videos, quizzes, and exercises focused on outcomes. OBE implementation will be integrated into each step of the design and development of the digital textbook to better align with the student context (Shukla et al., 2022).

In this study, both qualitative and quantitative approaches will be used. Qualitative data will be collected through in-depth interviews with lecturers and students to explore their experiences with the use of digital textbooks. Meanwhile, quantitative data will be obtained through surveys measuring the effectiveness of the textbooks on learning outcomes (Thakur et al., 2025). The combination of both approaches is expected to provide a comprehensive understanding of the application of OBE and the effectiveness of digital textbooks.

The research subjects involve around 200 students and 20 lecturers from several higher education institutions in Indonesia involved in Indonesian language courses. Data collection will be carried out through in-depth interviews, surveys, and document analysis to evaluate the implementation of OBE and the effectiveness of the digital textbook. The instruments used include Likert scale questionnaires for the surveys and interview guides to obtain qualitative data. Quantitative data will be analyzed using descriptive statistical analysis, while qualitative data will be analyzed using thematic analysis techniques. The research procedure includes the stages of digital textbook design, data collection, analysis of results, and data validity checks through triangulation and expert feedback. The results of this study are expected to provide in-depth insights into the application of OBE and the impact of digital textbooks on student learning outcomes.

Finding and Discussion
Based on data collected through interviews, surveys, and document analysis, this study follows two types of analysis stages: qualitative and quantitative analysis. For the quantitative data, descriptive analysis is used to describe the characteristics of the respondents and the survey results, while for the qualitative data, thematic analysis is applied to identify patterns and themes emerging from the interviews and analyzed documents.

The research findings presented cover several key stages, namely: a) analysis of the digital textbook used in the learning process; b) discussion on the impact of the digital textbook on student learning outcomes; c) presentation of students' and lecturers' perceptions regarding the implementation of Outcome-Based Education (OBE); d) identification of challenges faced in implementing OBE and digital textbooks; and e) exploration of opportunities for further development in the future.

Analysis of Digital Textbooks
The results of the preliminary study on the current Indonesian language textbooks indicate that most of the materials used in teaching are still textual and content-oriented, and have not yet fully integrated digital technology advancements with the

principles of Outcome-Based Education (OBE). The structure of material presentation does not clearly link learning outcomes, achievement indicators, and appropriate forms of evaluation. Additionally, although digital textbooks provide easy access for students, the interactive features, multimedia, and integration of outcome-based evaluations are still limited, so the potential for utilizing them to improve student competencies has not been maximized.

After the Indonesian language digital textbook was developed based on the principles of Outcome-Based Education (OBE), its effectiveness became evident, with improvements seen in the achievement of student learning outcomes, in terms of knowledge, skills, and attitudes. The success of the digital textbook is clearly shown in the media selection assessment table as follows.

Table 1. Media Selection Assessment

Aspect	Indicator	Score
Physique	Type of materials used	4
	Type of media used	5
	Size of student worksheets	4
	Durability of student worksheets	5
	Safety of the materials used	4
Usage	Suitability of books to student characteristics	5
	Practicality of the book (easy to store and move)	5
	Ease of use of the book	5
	The accuracy of books in developing abilities	4
	The book's accuracy in developing cooperative attitudes	4
Picture	Clarity of book images	4
	The suitability of the book images to the material	4
	Suitability of book images to student characteristics	4
	Matching the color of the book to the characteristics of the students	4
	Book color coordination	4
	Composition of colors, images and text	4
	The attractiveness of the book's colors	5
Writing	Font size conformity	5
	Suitability of the type of font used	5
	Clarity of writing in the book	5

This media assessment shows good quality, with high scores on almost all indicators. The physical, usage, image, and text aspects received scores of 4 and 5, indicating that the materials and media used are safe, the book is easy to use, the images align with the content, and the text is clear and easy to read. Overall, this media is highly suitable for the needs of the users. The assessment results show that the digital textbook received high scores on almost all aspects, particularly in terms of alignment with learning outcomes and ease of access for students.

Next, the assessment of the material selection in the Indonesian language digital textbook is conducted using several indicators, which are presented in the following table.

Table 2. Material Selection Assessment

Aspect	Indicator	Score
Material	Material Alignment with Curriculum	4
	Suitability of material with indicators and competencies	4
	Clarity of material content	5
	Interesting material	5
	Material truth	4
	Suitability of material to student characteristics	5
	Suitability of questions to material	5
	Language suitability to level of understanding	5
	Clarity of language used in delivering the material	5
Presentation of Material	Using case examples that are close to students	4
	Suitability of presentation sequence of material	4
	Suitability of the material to the media	5

	used	

This material assessment indicates the good quality of the content and its presentation, with most indicators receiving scores of 4 and 5. The material aligns with the curriculum, competencies, and student characteristics, and it is clear and engaging. The presentation of the material is also effective, although there is slight room for improvement in some indicators related to student understanding and language usage. Overall, this media strongly supports the learning process.

Both tables show that this learning media is of high quality, with good scores on physical aspects, usage, images, text, material, and material presentation. This media is safe, easy to use, clear, engaging, and effective in supporting learning, while also improving student understanding of the material being taught. Interactive features such as tutorial videos and quizzes provide students with opportunities to explore the material in more depth.

The discussion regarding the practicality and effectiveness of utilizing digital textbooks in learning Indonesian at the higher education level is consistent with the findings of Nuranisa et al. (2023), which revealed that digital formats significantly enhance the accessibility of instructional materials, allowing students to obtain resources anytime and anywhere. Beyond accessibility, the use of digital textbooks also facilitates greater interaction with content, such as through discussion forums embedded within digital learning platforms, which provide students with opportunities to ask questions, exchange perspectives, and share knowledge collaboratively.

This interactive dimension of digital textbooks plays a critical role in reinforcing student-centered learning and aligns closely with the principles of Outcome-Based Education (OBE), where engagement and active participation are central to achieving intended learning outcomes. The practicality offered by digital textbooks thus contributes not only to improved efficiency in the learning process but also to heightened student satisfaction. As a result, the integration of digital textbooks into higher education curricula can be considered an effective pedagogical strategy for enhancing both academic performance and the overall learning experience.

Impact on Learning Outcomes

The use of digital textbooks not only enhances students' academic performance but also plays a significant role in improving their critical thinking skills. Through an experiential approach, students are better able to connect theoretical concepts with practical applications, thereby strengthening both their comprehension and knowledge retention. Data derived from surveys and interviews with students indicate that more than 85% of respondents reported that digital textbooks increased their motivation and engagement with the course material. These findings reinforce the conclusion that the integration of digital media has a direct and positive impact on students' academic success.

The following table illustrates the relationship between the use of digital textbooks and student learning outcomes, as well as students' perceptions of the effectiveness of OBE-based learning:

Table 3. The Relationship Between Digital Textbooks and Learning Outcomes

Assessment Aspects	Control Group (Printed Book)	Experimental Group (Digital Textbook)
Average Value	13.16	15.96
Improving Critical Thinking Skills	55% of students reported an improvement	75% of students reported an improvement
Satisfaction with the Learning Experience	60% feel engaged and motivated	85% felt more engaged and motivated

The correlation between the use of digital textbooks and the development of students' soft skills is demonstrated through both quantitative and qualitative analysis results. The survey results show that students who frequently use digital textbooks tend to have better communication, collaboration, critical thinking, and time management skills compared to students who still rely on printed textbooks.

The OBE-based digital textbook not only presents content but also provides interactive activities, project-based assignments, discussion forums, and reflective assessments that encourage students to practice collaborative skills and problem-solving. This supports the assumption that the use of digital learning media can provide a broader, more dynamic, and contextual learning space.

This correlation is visualized in the following figure, which illustrates the positive relationship between the intensity of digital textbook usage and the improvement of students' soft skills. The greater the use of digital textbooks, the stronger the development of students' soft skills competencies, ensuring that learning not only focuses on academic achievement but also on shaping a well-rounded graduate profile

in accordance with the principles of Outcome-Based Education (OBE).

Figure 1: The Correlation Between the Use of Digital Textbooks and the Development of Soft Skills

Perceptions of Students and Lecturers

The perceptions of both lecturers and students regarding the implementation of Outcome-Based Education (OBE) in digital textbooks show that lecturers' understanding of OBE significantly affects the effectiveness of using digital textbooks. Lecturers who do not fully understand OBE tend to create monotonous and ineffective learning experiences (Kim & Choi, 2021; Rahate et al., 2020). This misunderstanding makes it difficult to synchronize learning objectives, teaching methods, and assessments that are outcome-focused. However, if rubrics and learning outcomes are clearly explained, a more structured and outcome-oriented learning design can be achieved (Rao, 2020; Kondo et al., 2022).

Lecturers who understand the principles of OBE can design more structured, outcome-based learning materials, and are more effective in using digital technology. OBE-based designs, which align with instructional design approaches such as Design-Based Learning (DBL) and other competency-based models, have been proven to increase engagement and concept

understanding. Lecturers who can integrate interactive features such as quizzes, discussion forums, and videos in digital textbooks help students not only understand academic concepts but also develop practical skills relevant to the workforce. This aligns with Dabbous' (2022) research, which states that experiential learning and interactive tools can enhance motivation, engagement, and concept understanding. The use of adaptive digital tools and the ADDIE-based cycle also improves learning outcomes in higher education. On the other hand, lecturers who have limited understanding of OBE or struggle with using technology tend to impact the quality of learning, especially in assessments that are inconsistent with the desired outcomes.

Therefore, the organization of workshops and training focused on OBE and educational technology is essential to strengthen teaching capacities in higher education. These training programs should include hands-on practice in implementing educational technology so that lecturers can design interactive, engaging, and outcome-oriented learning (Zhang et al., 2021). This continuous training program will help lecturers improve teaching quality and student learning outcomes, as well as prepare them to face the increasingly competitive workforce challenges.

Challenges in the Implementation of OBE

Although OBE-based digital textbooks offer numerous benefits, their implementation continues to face several challenges, particularly with regard to lecturers' limited understanding of OBE and their tendency to retain traditional instructional methods. Rahate et al. (2020) highlight that many lecturers are not yet fully familiar with the principles

of OBE, which results in instructional design, learning objectives, and assessment practices that are not entirely aligned with the intended outcomes. Such resistance to change hinders the adoption of innovative technologies, thereby reducing the potential of digital textbooks to improve student engagement and the overall quality of learning (Tungpalan & Antalan, 2021). Institutional barriers, including inadequate technological facilities, insufficient training, and the lack of supportive policies consistent with outcome-based design, also constitute critical factors that impede the effective implementation of OBE-oriented digital textbooks. In this regard, the alignment of assessment rubrics, learning objectives, and teaching practices is essential to ensure that evaluations genuinely reflect relevant curricular achievements (Rao, 2020).

Nevertheless, the implementation of OBE and digital textbooks also presents significant opportunities for twenty-first-century education, particularly in fostering critical thinking, collaboration, and communication skills. Learning designs that integrate OBE with approaches such as Design-Based Learning (DBL) have been shown to enhance student engagement, motivation, conceptual understanding, and collaborative competence (Zhang et al., 2021; Zhong et al., 2023).

To realize these benefits, consistent support in the form of ongoing faculty training, sufficient technological infrastructure, and curriculum design aligned with OBE learning outcomes is crucial. With the provision of adequate technical facilities and strong institutional backing, the adoption of OBE through digital textbooks has been demonstrated to be more effective and capable of generating significant

positive impacts on student learning outcomes (Lee et al., 2023).

Opportunities for Future Development

Although OBE-based digital textbooks promise substantial benefits for higher education, their successful and sustainable implementation requires comprehensive support. Studies indicate that flexible digital textbooks can provide more personalized learning experiences that are closely aligned with the attainment of specific learning outcomes. Moreover, the integration of OBE with instructional design models such as Design-Based Learning (DBL) has been shown to enhance student engagement, conceptual understanding, and the overall quality of outcome-based assessment.

The incorporation of interactive elements—such as quizzes, discussions, and videos—into digital textbooks has the potential to increase student motivation and foster collaborative learning skills, thereby contributing to the mastery of competencies relevant to the professional world. In addition, the design of instructional content that takes into account cognitive load and usability, particularly when supported by artificial intelligence (AI), can significantly enhance learning effectiveness. From an evaluative perspective, OBE necessitates curriculum designs and assessment rubrics that are systematically aligned with intended learning outcomes, ensuring that evaluation processes are both rigorous and meaningful.

This study also emphasizes the importance of sustained investment in faculty training, technological infrastructure development, and curriculum alignment with learning outcomes to ensure that digital textbooks serve not merely as instructional tools but also as platforms for the development of workplace-relevant skills. Longitudinal studies on the impact of OBE on employability have demonstrated that outcome-based learning can enhance competencies that align with labor market demands, provided that curriculum design and assessment strategies are appropriately constructed (Guo et al., 2023). Consequently, further research is required to evaluate the long-term impact of OBE-based digital textbooks on the development of employability skills and to formulate more effective, outcome-oriented learning strategies for twenty-first-century higher education.

Conclusions

This study demonstrates that the implementation of the Outcome-Based Education (OBE) approach in the development of digital Indonesian language textbooks in higher education is highly effective in addressing the challenges of twenty-first-century education. Digital textbooks designed with OBE principles not only significantly enhance the quality of teaching and learning but also provide solutions to students' needs for flexible, interactive, and outcome-oriented learning media. This indicates that the integration of OBE-based digital textbooks has the potential to substantially improve the effectiveness of higher education.

The findings reveal that the use of OBE-based digital textbooks promotes active student engagement, enabling them to acquire language skills in a more practical and applicable manner while creating a more meaningful learning experience. Interactive features such as quizzes, videos, discussion forums, and instant feedback strengthen students' conceptual understanding and foster their motivation to think critically. In this way, students are not

merely passive recipients of knowledge but become active participants in a constructive learning process oriented toward measurable outcomes.

From a design perspective, the integration of OBE principles into digital textbooks requires systematic and outcome-driven instructional planning. The Dick and Carey instructional design model has proven particularly relevant in ensuring that the digital textbooks achieve the intended learning outcomes. Moreover, OBE-based material development strengthens the linkage between theory, practice, and industry demands, effectively bridging the gap between academic contexts and the professional world. This alignment increases both the relevance and the quality of the instructional materials produced.

Nevertheless, this study also identifies several challenges, such as limited understanding among some lecturers regarding the philosophy of OBE and constraints in integrating educational technology effectively. These challenges highlight the importance of continuous professional development and capacity building for lecturers, particularly in areas such as digital literacy, outcome-based assessment methods, and adaptive instructional design. Despite these limitations, the study emphasizes the considerable opportunities offered by the development of OBE-based digital textbooks, particularly in enabling personalized learning pathways and fostering a more inclusive and responsive learning environment for the future.

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