



Students' perceptions of Android-based digital textbooks in higher education

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Abstract. The urgency of this research is that the development of Android-based digital textbooks for Electronic Records Management courses is urgently needed to support the OBE curriculum, improve 21st-century skills, and facilitate interactive and accessible learning. This research aimed to measure students' perceptions to develop an Android-based digital textbook for the Electronic Records Management course to support the implementation of Outcome-Based Education (OBE) in higher education. Utilising the 4D development model, Define, Design, Develop, and Disseminate, the study involved 60 students from the Office Administration Education program at a state university in East Java. Validation by experts in content, media, and language resulted in scores of 92.83%, 95.65%, and 86%, respectively, indicating a high feasibility level. Student responses were overwhelmingly positive, with mean scores exceeding 4.21 across categories such as format, relevance, engagement, satisfaction, and confidence. The findings confirm the digital textbook's

effectiveness in enhancing 21st-century skills and meeting learning outcomes aligned with OBE standards. Recommendations include refining visual elements and adding interactive features to maintain engagement. This research contributes significantly to digital textbook development, emphasising accessibility and adaptability to meet the demands of modern education and professional readiness.

Introduction

Every level of society now uses digital technology for sociability, communication, entertainment, and knowledge learning (Engbrecht, 2018; Weisberg, 2011). Due to advancements in digital technology, the field of education is undergoing significant change, and educators must adjust to these developments. To make learning more engaging, educators are integrating digital media into lessons and employing more multimedia in presentations (Chiu, 2017). The use of digital technology as an educational tool requires ongoing efforts in professional development for educators and university leaders (Håkansson Lindqvist, 2019). Given the potential applications of technology in education, educators must be able to incorporate technology into their lessons and swap out outdated techniques with more up-to-date resources (Singh, 2016). In helping educators to support student learning with digital technology, digital textbooks are expected to play a decisive role (Gu, X., Wu, B. and Xu, 2015; Widana, 2020).

Digital textbooks provide an alternative to overcome the limitations of printed books (Joo et al., 2017). This book will replace printed textbooks due to the shift towards digitalisation. Digital textbooks display multimedia content and allow students to explore different information, can increase student interaction and can achieve learning objectives by searching and navigating content, increasing learning activities and feedback, and improving communication between friends and teachers (Nelson et al., 2011).

Several previous studies have shown that digital textbooks have many advantages, such as comprehensive search, engaging multimedia, lower costs, being accessible anywhere, and being interactive (Abuloum et al., 2019; Daniel & Woody, 2013; Edmondson & Ward, 2016; Millar & Schrier, 2015). Additionally, digital textbooks facilitate learning activities for students both within and outside of the classroom (Horsley & Martin, 2015). This book also makes the work of educators easier (Lokar, 2015). Educators can easily use many features in this digital book to explain or assess students. Of course, the preparation of digital textbooks must be adjusted to the applicable curriculum. Previous research shows that digital teaching materials are suitable for use in learning because they are in line with developments and innovations in education, and are adjusted to current needs that change the system towards digital (Guswita, 2021). Additionally, using digital books can improve learning results and student motivation (Agustiniingsih, 2021; Dewi, 2015; Ningsih et al., 2021). The use of teaching materials that integrate elements of information technology is very strategic for the continuation of a more conducive learning atmosphere, to enhance the learning outcomes of students (Safitri & Nurkamilah, 2020).

The Office Administration Education S1 study program currently uses an OBE (Outcome-Based Education) curriculum, which focuses more on learning outcomes than just the required material, and allows students to acquire new skills to prepare them for the global level (Chan & Chan, n.d.; Japee & Oza, 2021). So it can be said that OBE is the basis for achieving the quality of higher education; besides, OBE can also be applied to run the Independent Learning Independent Campus (MBKM) program (Ahmad, 2023; Utami & Suswanto, 2022).

One of the compulsory courses in the study program is Electronic Archive Management. This course is compulsory for students after taking the archive management course. So far, lecturers have provided teaching materials like PowerPoint presentations and research journals. There is yet to be a student handbook because there is still a need for printed books for this course. Therefore, to promote the accomplishment of learning goals in line with the profile of graduates of the Office Administration Education S1 study program, textbooks that are developed in accordance with the OBE curriculum to enhance students' skills and abilities are crucial. This research addresses the issue of the lack of textbooks for students in electronic records management courses. This research will develop a digital textbook tailored to the needs in the field and available infrastructure, namely, using Android smartphones. This research has the potential to contribute in several ways, including facilitating the learning process for students and faculty, increasing student interaction, and enabling students to learn anywhere since the textbook can be accessed via smartphone. The problem-solving approach involves the development of a digital textbook for the electronic records management course.

The constructivist theory that Android-based digital books enable independent and interactive learning, in line with the principles of constructivism, which emphasise the active role of students in constructing their own knowledge. Wulandari et al. (2023) highlight that the constructivist approach is well-suited to integration with digital technologies such as e-learning and mobile learning because it allows learners to construct their knowledge independently, flexibly, and contextually. Mobile learning allows students to access learning materials anytime and anywhere.

This supports the constructivist principle that learning is a continuous and contextually relevant process (Sulaiman & Dashti, 2018; Xu, 2019).

Previous studies have shown that digital textbooks are highly suitable for use in learning and can improve student learning outcomes and motivation (Abuloum et al., 2019; Daniel & Woody, 2013; Edmondson & Ward, 2016; Millar & Schrier, 2015; Lokar, 2015). Thus, the novelty of this study lies in the fact that the creation of digital textbooks with attractive features increases student interaction and facilitates educational activities in the classroom with a constructivist approach. These digital textbooks use smartphones, making it easier for students to learn anytime. This research will be designed in accordance with the OBE curriculum with a constructivist approach.

Numerous devices, including cell phones, laptops, computers, PDAs (Personal Digital Assistants), and other portable electronics, may be used to read digital textbooks. Other features, like hyperlinks, may be added to digital books, and they can be utilised in a variety of file formats. Based on the results of observations in the field, this study uses Android-based digital textbooks because all students have smartphones that can be used to access digital books. The development of this digital textbook involves three applications: a Flipping book, then converted using iSpring Suite, and converted to Android using APK 2 Builder.

Previous research shows that digital textbooks are very engaging and easy to navigate (Dwyer, 2023; Keedle et al., 2024). Digital books have interesting features so that student interaction increases and makes it easier for educators to carry out learning activities in the classroom (Abuloum et al., 2019; Daniel & Woody, 2013; Edmondson & Ward, 2016; Millar & Schrier, 2015; Lokar, 2015). This digital book uses a smartphone, which makes it easier for students to learn at any time.

The researcher is interested in creating a digital textbook for the course on electronic archive administration, based on the description given above. This textbook was created in an attempt to implement student-centred learning. According to the learning objectives required by the workplace, the textbook's contents and instructions are supposed to help students develop the abilities that have been established in each course's semester learning plan (RPS). This research aims to produce a digital textbook for the electronic archive management course to improve 21st-century skills. The urgency of this research is to develop a digital textbook for the electronic archive management course that is by the OBE curriculum to improve students' skills and abilities in order to support the achievement of learning outcomes according to the profile of graduates of the study program.

Based on the background description above, the problem formulation obtained is: 1) How to develop a digital textbook for the Electronic Records Management course that is in line with the needs in the field and the available infrastructure?, 2) How do students respond to the digital teaching module for the electronic records management course?.

Method

Research Methods and Design

This research uses a 4-D development model consisting of four stages, namely the definition stage, design stage, development stage, and dissemination stage (Siyoto & Sodik, 2015). The 4-D model was chosen because it corresponds to the stages of the research to be carried out.

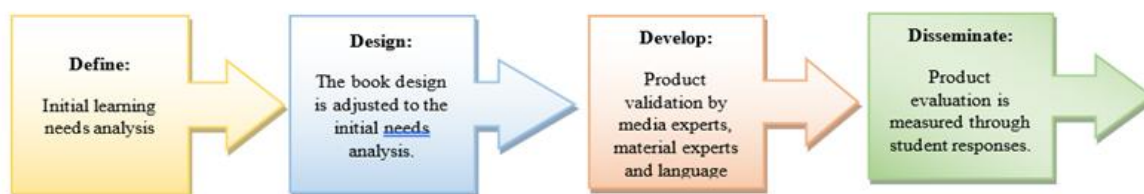


Image 1. 4D Model

Participants and Sampling Technique

This research began with problem identification through preliminary studies, followed by development procedures in accordance with the 4-D development model. Experts conducted product validation, and students performed product testing to observe their response to the developed product.

The subjects of this study were 60 students of the Office Administration Education Undergraduate Study Program from a State University in Java. Instrument: The research used in this study is the validation sheet of material experts, learning media experts, validation of language experts, and student response sheets.

This Research Procedure Consists of

Definition Stage. The definition stage is the initial stage of 4-D development research. The purpose of the definition stage is to establish and define the learning requirements. Design Stage. The design stage is the initial stage of developing the Electronic Records Management course in accordance with the OBE RPS. Development Stage. The development stage is carried out with the aim of modifying the Records Management learning media that have been produced, and is considered an initial revision and must go through a revision stage to become a final version that is suitable for use. Dissemination Stage. The dissemination stage is the final stage in the 4-D development model. In this stage, the learning media will be used on a wider scale, namely at Surabaya State University, Indonesia University of Education (UPI), and Malang State University.

Data Collection Techniques and Research Instruments

The research instruments used in this study were textbook validation sheets and student response sheets. The validation sheets were used to measure the validity of the textbooks developed prior to limited testing. Validation consists of three aspects, namely material validation, graphic validation, and language validation. The data analysis technique used in this study was to analyze quantitative data obtained from the results of validation by material experts, language experts, and graphic experts using a Likert scale. The Likert scale used consisted of five categories, 1-5. The validation results from the experts were calculated using the following formula.

$$\text{Percentage (\%)} = \frac{\text{Total score}}{\text{Maximum Score}} \times 100\%$$

Data Analysis Techniques and Criteria

The data analysis technique used in this study is to analyse quantitative data obtained from the results of validation by material experts, validation by learning media experts, and student responses.

Table 1. Expert Validation Interpretation

Percentage	Interpretation Criteria
0% - 20%	Unworthy
20% - 40%	Not feasible
40% - 60%	Quite decent
60% - 80%	Worthy
80% - 100%	Very worthy

Table 2. Interpretation of Student Responses

Mean	Interpretation Criteria
1.00 – 1.80	Very Bad
1.81 – 2.60	Not good
2.61 – 3.40	Pretty good
3.41 – 4.20	Good
4.21 – 5.00	Very good

Results and Discussion

Rapid developments in information technology have brought significant changes to office management, enabling the automation of various administrative tasks and facilitating digital collaboration. Digitisation in the office environment can improve overall efficiency and productivity (Jones & George, 2019). This can be seen in the implementation of digital systems that simplify electronic file management, reduce manual workloads, and optimise accessibility. This development serves as the foundation for the development of digital textbooks that leverage technology to meet the needs of modern management.

Electronic records management involves the systematic handling of digital information for the purposes of storage, access, and data preservation. The increasing need for high data security in records management drives this trend (Smith, 2020). The textbooks developed aim to cover the basic concepts of electronic records management so that students understand the principles of modern archiving and are ready to apply them in line with the latest.

In Indonesia, regulations on electronic archives govern the legality and management of digital information, including personal data protection. For example, Law No. 11 of 2008 on Electronic Information and Transactions (ITE) serves as a guideline for the protection of digital data and information. Understanding this policy is important in producing a workforce that is aware of the legal aspects of electronic archive management. Therefore, this textbook is designed to equip students with relevant legal knowledge so that they can face legal challenges in the workplace.

Electronic archives require secure storage methods, regular maintenance, and data migration strategies to ensure that information remains preserved. Data maintenance and migration are important to prevent the loss of electronic archives over time (Matlala et al., 2022). This textbook provides material that focuses on best practices in the creation and maintenance of electronic archives, which is important for students to master the essential basic skills in the field of office management.

The security of electronic archives emphasises efforts to protect against cyber threats and the implementation of restricted access policies. Digital security in electronic archives involves the use of encryption technology and authorisation-based access controls (Carroll, n.d.). In this textbook, archive security material is presented so that students understand the importance of digital data protection, which includes the use of encryption and access controls, in order to maintain the confidentiality and integrity of archives. The study's results show that this digital textbook meets the eligibility criteria and is well-received by students. Develop a digital textbook on electronic archive management based on the OBE curriculum with a constructivist approach.

Define. The define stage in the 4D development model determines learning needs and identifies competencies to be achieved through the media being developed. This stage involves needs analysis, objectives analysis, and identification of learner characteristics to ensure that the development product is in accordance with the learning context (Thiagarajan et al., 1974).

The following topics will be covered in this book are (a) Trends in Office Management; (b) Basic Concepts of Electronic Records Management; (c) Policies and Legal Aspects of Electronic Records; (d) Types of Electronic Record Media; (e) Creation of Electronic Records; (f) Use and Maintenance (Preservation) of Electronic Records; (g) Reduction of Electronic Archives; (h) Security and Access to Electronic Archives; (i) Archive Media Transfer; (j) Electronic Archive Forensics; (k) Electronic Archiving Resources; (l) Designing Electronic Archive Systems/Applications.

In the definition stage, researchers identify the materials to be developed in digital textbooks, such as the basic concepts of electronic archive management and its various technical aspects. Needs analysis is carried out to ensure that the materials compiled will be relevant and useful for students. In addition, this book considers the characteristics of students as the main users, so that the materials are compiled in a language that is easy to understand and appropriate to their level of intellectual development. This is in line with the guidelines of (Thiagarajan et al., 1974), which emphasises the importance of identifying student characteristics in the early stages of development so that learning media can be optimally accessed by them.

Design. In the design stage, researchers design the appearance of digital textbooks, integrating visual elements such as images and illustrations that support conceptual understanding. In addition, researchers also pay attention to navigation and content structure so that it is easy for students to follow. In this design process, the design of learning media must be simple and easy to navigate so that students can focus on the content without technical difficulties (Dick et al., 2009). During the design stage, researchers designed the layout of the digital textbook, integrating visual elements such as images and illustrations that support conceptual understanding. In addition, researchers also paid attention to navigation and content structure to make it easy for students to follow. In this design process, learning media design must be simple and easy to navigate so that learners can focus on the content without technical difficulties (Dick et al., 2009). In this context, the selection of an Android-based platform enables broader access and flexibility in use across various devices, tailored to students' needs. In this context, the selection of an Android-based platform allows for wider access and flexibility in use across devices, according to student needs.

One barrier to the effective use of digital textbooks is the time and effort required for meaningful integration into the curriculum. In this study, the development of digital textbooks was adapted to the needs of the OBE curriculum and developed through a constructivist approach. These textbooks are tailored to students' learning needs, aligned with OBE requirements, and thus provide positive feedback. Constructivism helps accommodate students' diverse learning styles (Hosler & Hosler, 1 C.E.; Jie et al., 2020).

At the product design stage, the researcher designed the development of a digital textbook for the electronic archive management course. This design was developed based on the initial needs analysis designed through the Semester Learning Plan. This study utilised two platforms, namely APK 2 Builder and FlippingBook. Experiment by [Cheng et al. \(2025\)](#) supports that no-code tools like APK 2 Builder enable educators or non-technical professionals to create apps relevant to their specific needs, without requiring programming skills.

In this study, APK 2 Builder is an application that allows users to convert HTML5-based content into Android applications (APK) without requiring programming skills. Additionally, this application also has a variant that can convert educational media files designed using PowerPoint into an application format. With this feature, APK 2 Builder becomes a highly useful tool for educators, researchers, and digital content developers who wish to present materials in a more interactive and easily accessible manner. To better understand its functionality and usage, it is recommended to refer to the official documentation or user guide available. dy, researchers used APK 2 Builder to develop an Android-based application specifically designed for electronic archive management. This application is expected to support data management efficiency, especially in the context of office management and business services. In this study, one of the platforms used by researchers was APK 2 Builder, which was converted into Android format. The following is the design of the Electronic Archive Management application.

The conversion of Android-based digital books will be carried out after the material has been completed. The product created in this study is an Android-based digital textbook. The Linux-based operating system for mobile devices such as smartphones/mobile phones and tablet computers was developed by Google in conjunction with the Open Handset Alliance. As an operating system, it provides an open-source platform for developers to create applications.

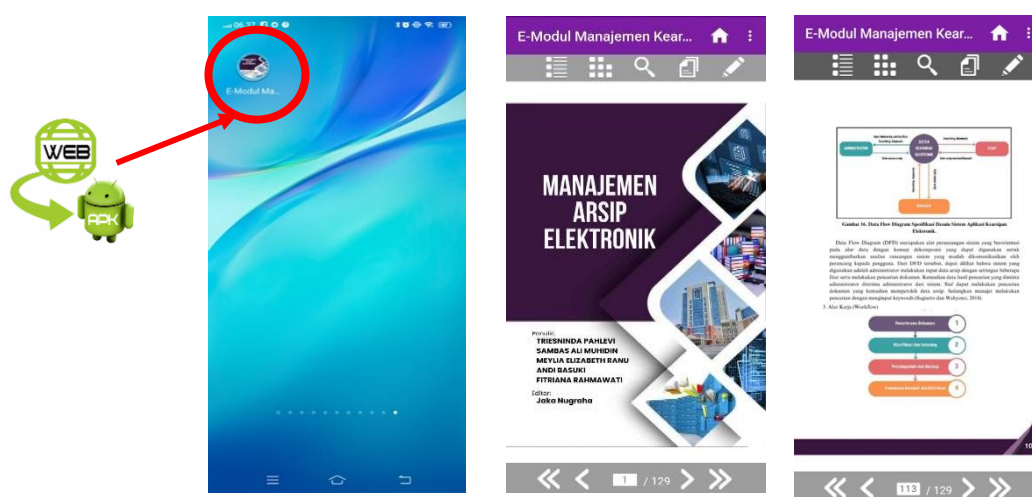


Image 2. Digital Book View on Android

Flipbook is an application that supports the creation and use of e-modules ([Ramadhina & Pranata, 2022](#)). This application is a digital book containing images, animations, videos, and audio, allowing readers to open pages like reading a physical book or magazine ([Oktaviara & Pahlevi, 2014](#)). One of the flipbook-based applications, Heyzine Flipbook, is designed to create interactive e-modules. Heyzine Flipbook, as a web-based program, can convert PDF files into digital books, catalogs, magazines, or brochures, which can be accessed either for free or for a fee without the need to

download additional applications (Khomaria & Puspasari, 2022).

This application has features such as adding links, images, videos, audio, and web integration, so the resulting e-module has more diverse information than the printed module. Heyzine Flipbook can also be used via smartphone devices or PCs (Setiyaningsih et al., 2024). With complete features and easy access, this application greatly supports learning in certain subjects in vocational high schools.

Develop. The validation of material in learning media serves to ensure that the content is relevant, in line with the curriculum, and easy for students to understand (37). This validation also assesses the suitability of the content, presentation, and language used in the learning material. The results from the subject matter experts are as follows:

Based on the results of the material validation, the quality of the material from the Development of Digital Textbooks for the Electronic Records Management Course can be determined. The material indicators include three aspects that are assessed, namely the suitability of the content, presentation, and language.

Table 3. Expert Validation Results

No	Indicator	Results	Information
1	Subject Matter Expert	92.83%	Very Feasible
2	Media Expert	95.65%	Very Feasible
3	Linguist	86%	Very Feasible

Good and Very Good". The indicators assessed are "Content Suitability, Presentation, and Language Suitability". The total score obtained from the "Content Suitability" indicator is "Very Suitable" with a percentage of 95%. The total score obtained from the "Presentation" indicator is "Very Suitable" with a percentage of 97.5%. The total score obtained from the "Language Suitability" indicator is "Very Suitable" with a percentage of 86%.

Based on the validation results, the subject matter experts concluded that the "Development of a Digital Textbook for the Electronic Records Management Course" is suitable for use. The subject matter experts provided several notes/suggestions, namely, "The content is very interesting as reference material for students and practitioners, so this book is suitable for use in the field."

Although overall it is considered very feasible, there is still room for improvement, especially in the language aspect. In the first stage of media expert validation, several revisions were suggested, especially in the display design to improve readability and navigation. After the revision, the second stage of validation showed that the media received a feasibility percentage of 95.65%, which is in the "Very Feasible" category.

Media validation is carried out to assess technical aspects, including readability, design, navigation, and ease of use of digital applications (Koc & Barut, 2016a). In addition, good learning media must be simple, accessible, and attractive so that students can use them optimally (Mayer, 2021a). Based on the media validation results, the quality of the media from the Development of Digital Textbooks for the Electronic Records Management Course can be determined.

After the researchers carried out revisions, the media experts' validation received an average score of 4.78, with a percentage of 95.65%, earning the rating of "Very Suitable." Therefore, the media is suitable for use, with the following note from the media expert: "The media is highly appealing as a reference material for students and practitioners, making this book application suitable for use

in the field.” The following is the revised cover design in accordance with the researcher's guidance.

In the first stage of expert media validation, several revisions were suggested, particularly regarding the design layout to enhance readability and navigation. After the revisions, the second validation stage showed that the media achieved a suitability percentage of 95.65%, which falls into the “Highly Suitable” category. This aligns with a study by [Clark & Mayer, \(2016\)](#) which found that effective visual presentation in digital learning media can enhance user appeal and engagement. These results indicate that the digital textbook has met the criteria for good design and usability.

Study of [Wu & Chen, \(2018\)](#) shows that digital textbooks designed with curriculum needs in mind can improve students' understanding and interest in learning. Material validation strengthens the quality of the developed textbook material. Other research results show that digital books are very interesting for students and easy to navigate.

Media validation is conducted to assess technical aspects, including readability, design, navigation, and ease of use of digital applications ([Koc & Barut, 2016](#)). In addition, good learning media must be simple, easy to access, and interesting so that students can use it optimally ([Mayer, 2021b](#)). Effective visual presentation in digital learning media can increase user appeal and engagement ([Clark & Mayer, 2016](#)). These results indicate that the digital textbook has met the criteria for good design and usability.

Disseminate. The textbook was tested on a large scale at State Universities in Java to measure the effectiveness of digital books through student responses. The instrument was a questionnaire response to the digital book. Data analysis was conducted using SPSS Statistics 25.

Students' Perceptions. Students' perceptions to digital learning media are important indicators in assessing the media's effectiveness and appeal. Evaluating student responses to digital learning media can provide insight into how effective the media is in increasing understanding and interest in learning ([Bennett & Saunders, 2019](#); [Widana et al., 2020](#)).

Table 4. Results of Student Response Analysis

Subcategories	Statement	Mean
Format (F1)	The appearance of this digital textbook is easy to understand.	4.47
F2	The structure and design of the digital textbook are attractive.	4.38
F3	The use of fonts and colours in digital textbooks is appropriate and not confusing.	4.30
F4	Navigation in the digital textbook is easy to follow.	4.35
Relevance (R1)	The content of the material in the digital textbook is in accordance with the course requirements.	4.45
R2	The examples and illustrations provided are relevant to the topic being discussed.	4.38
R3	This textbook helped me understand the concepts of electronic records management.	4.35
Attention (P1)	This digital textbook attracted my attention to study more deeply.	4.43
P2	I am interested in reading and learning more with this textbook.	4.38
P3	The visuals and media in digital textbooks prevent me from getting bored easily.	4.28
Satisfaction (K1)	I am satisfied with the content presented in this textbook.	4.33

Subcategories	Statement	Mean
K2	This textbook met my expectations in terms of information and presentation.	4.37
K3	I feel comfortable using this digital textbook during the learning process.	4.30
Self-Confidence (PD1)	This textbook makes me more confident in understanding electronic archive management material.	4.33
PD2	I feel more prepared to take the course after using this textbook.	4.43

The results of the subcategory analysis show that the average score is above 3.21, which is included in the very good category. Overall, digital textbooks are effective, relevant, and interesting for students. The highest average value is in subcategory F1, which is 4.47. This shows that the appearance of digital textbooks is very relevant to students' learning needs. While the lowest average value is in subcategory P3, this shows the need for the development of more attractive visuals or additional media.

Table 5. Results of Student Response Interpretation

Indicator	Mean	Interpretation
Format	4.37	Very good
Relevance	4.39	Very good
Attention	4.36	Very good
Satisfaction	4.33	Very good
Self-confident	4.38	Very good

This digital textbook was rated very well by students. The textbook successfully fulfilled various important aspects, such as the relevance of the material, an attractive appearance, and the ability to increase student confidence and satisfaction. Although the results are very good, it is recommended to continue developing visual and interactive elements to maintain the appeal and improve the students' learning experience.

The textbook is designed for Android devices and has interactive features such as hyperlinks, illustrations, and simple navigation. Digital textbooks provide a solution to the limitations of printed books, especially in accessibility and interactivity. According to research [Utari et al. \(2025\)](#) the integration of multimedia elements in digital learning materials increases student engagement in learning and helps them understand complex concepts. In addition, the Android-based platform allows flexible use according to the needs of students in the digital era.

The results of this study support the finding that technology-based digital textbooks are relevant not only to academic needs but also to the world of work. This book covers materials such as electronic archive management, legal policies, and data security that are highly relevant to preparing students to face the challenges of modern professions.

Many students find digital textbooks more engaging than traditional printed materials. A significant majority (over 76%) expressed that reading digital texts is more interesting and motivating ([Manalu, 2019](#)). The convenience of accessing materials through smartphones and other devices contributes to this increased motivation, as students appreciate the ability to read anywhere and at any time ([Suhartini & Ulfa, 2024](#)).

Digital texts encourage independent learning, allowing students to explore resources without waiting for instructor guidance (Simonson et al., 2019). This autonomy is seen as a major advantage of digital formats.

Table 6. Results of Student Responses

Criteria	Indicator	Presentation	Interpretation
Response	Format	87.4%	Good
	Relevance	87.4%	Good
Reaction	Attention	87.4%	Good
	Satisfaction	87.4%	Good
	Self-confident	87.4%	Good

Based on student responses, digital textbooks received an average score of 87.4% in the “Good” category. This shows that this learning medium has been well received by students, especially in terms of ease of navigation, relevance of material, and visual appeal. Interactive digital learning media that are tailored to the learning needs of students can increase motivation to learn and understanding of the material (Shieh & Hsieh, 2021).

The limitations of this study lie in the fact that additional features, such as simulations or interactive videos, have not been tested, which could potentially enrich the learning experience of students and provide a more in-depth picture of the overall effectiveness of digital textbooks. The results of this study not only produced a product in the form of an Android-based digital ebook, but also revealed the concept of contextual mobile digital learning development, which can be replicated by other researchers or educators, namely, Flexible and interactive. This module can be studied anywhere and anytime, supporting the principles of constructivism.

Conclusion

Digital textbooks for Electronic Records Management courses have proven to be effective as innovative learning media. Validation from experts and positive responses from students indicate that these textbooks meet OBE-based education standards and 21st-century learning needs. This research makes a significant contribution to the development of digital teaching materials in higher education. The author also recommends that future research focus on measuring the effectiveness of e-modules not only based on student perceptions but also based on student learning outcomes, engagement, and motivation. In addition, further testing of additional features, such as simulations or interactive videos, is needed to enhance the learning experience of students directly so that the benefits are more comprehensive.

Bibliography

- Abuloum, A., Farah, A., Kaskaloglu, E., & Yaakub, A. (2019). College students' usage of and preferences for print and electronic textbooks. *International Journal of Emerging Technologies in Learning*, 14(7), 80–97. <https://doi.org/10.3991/ijet.v14i07.9871>
- Agustiniingsih, A. K. (2021). Penggunaan buku digital untuk meningkatkan motivasi dan hasil belajar siswa kelas XI IPS 3 SMAN Pakusari Jember (The use of digital books to improve the motivation and learning outcomes of class XI IPS 3 students at SMAN Pakusari Jember). *PESAT Jurnal Pendidikan, Sosial, Dan Agama*, 6(6).
- Ahmad, C. F. (2023). *Implication And Application MBKM ' s Curriculum In Education (Madrasah And Universities)*. 1(2), 106–122. <https://doi.org/10.21111/attadib.v18i1.9910>
- Bennett, J. A., & Saunders, C. P. (2019). A virtual tour of the cell: Impact of virtual reality on student learning and engagement in the stem classroom. *Journal of Microbiology & Biology*

Education, 20(2). https://doi.org/10.1128/JMBE.V20I2.1658/SUPPL_FILE/JMBE-20-37-S001.PDF

- Carroll, M. (n.d.). *Cybersecurity in Digital Archiving*. Springer.
- Chan, A., & Chan, C. (n.d.). A new outcome-based curriculum: Its impact on student core competence. *1*(2), 24–32.
- Cheng, Y., Qi, X., Li, Y., & Wang, Y. (2025). ReckDroid: Detecting red packet fraud in Android apps. *Computers & Security*, 148, 104117. <https://doi.org/https://doi.org/10.1016/j.cose.2024.104117>
- Chiu, T. (2017). Introducing electronic textbooks as daily-use technology in schools: A top-down adoption process. *British Journal of Educational Technology*, 48(2), 524–537. <https://doi.org/10.1111/bjet.12432>
- Clark, R. C., & Mayer, R. E. (2016a). *From glitzy las vegas-style games at one extreme to page turners consisting of text on screens at the other how do people learn from e-courses?*
- Clark, R. C., & Mayer, R. E. (2016b). *From glitzy las vegas-style games at one extreme to page turners consisting of text on screens at the other how do people learn from e-courses?*
- Daniel, D. B., & Woody, W. D. (2013). E-textbooks at what cost? performance and use of electronic v. print texts. *Computers & Education*, 62, 18–23. <https://doi.org/https://doi.org/10.1016/j.compedu.2012.10.016>
- Dewi, F. (2015). *Proyek buku digital: Upaya peningkatan keterampilan abad 21 calon guru sekolah dasar melalui model pembelajaran berbasis proyek* (Digital book project: Efforts to improve the 21st century skills of prospective elementary school teachers through a project-based learning model). Proyek buku digital.
- Dick, W., Carey, L., & Carey, J. O. (2009). *The Systematic Design of Instruction*. Pearson Education.
- Dwyer, B. (2023). *E-texts and e-books: constructing meaning with and from texts in an online and digital world* (R. J. Tierney, F. Rizvi, & K. B. T.-I. E. of E. (Fourth E. Ercikan, Eds.; pp. 551–562). Elsevier. <https://doi.org/https://doi.org/10.1016/B978-0-12-818630-5.07113-X>
- Edmondson, D. R., & Ward, C. (2016). Students attitudes towards textbook types: Are students really ready for e-textbooks? *Atlantic Marketing Journal*, 5(3), 2165–3879.
- Engbrecht, J. R. (2018). Digital textbooks versus print textbooks. *Reference Librarian*, 5, 1–29. https://doi.org/10.1300/J120v44n91_05
- Gu, X., Wu, B. and Xu, X. (2015). Design, development, and learning in e-textbooks: What we have earned and where we are going. *Journal of Computers in Education*, 2(1), 25–41.
- Guswita, R. (2021). Pengembangan buku ajar digital bahasa indonesia berbasis hots untuk meningkatkan kemampuan pemecahan masalah mahasiswa stkip muhammadiyah muara bungo (Development of Hots-based Indonesian language digital textbooks to improve the problem-solving abilities of students at Muhammadiyah University of Muara Bungo). *Jurnal Basicedu*, 5(5), 4340–4351.
- Håkansson Lindqvist, M. (2019). School leaders' practices for innovative use of digital technologies in schools. *British Journal of Educational Technology*, 50(3), 1226–1240.
- Horsley, M., & Martin, P. (2015). *Digital textbooks come to all Australian students and schools. In Digital Textbooks: what's new?* Servicio de Publicaciones e Intercambio Científico.
- Hosler, K. A., & Hosler, K. A. (1 C.E.). Framing mobile learning: Investigating the framework for the rationale analysis of mobile education, 238–253. <https://Services.Igi-Global.Com/Resolvedoi/Resolve.aspx?Doi=10.4018/978-1-4666-6284-1.Ch013>, <https://doi.org/10.4018/978-1-4666-6284-1.CH013>
- Japee, G. P., & Oza, P. (2021). *Curriculum and Evaluation in Outcome-Based Education*. 58, 5620–5625.
- Jie, Z., Sunze, Y., & Puteh, M. (2020). Research on teacher's role of mobile pedagogy guided by the zone of proximal development. *ACM International Conference Proceeding Series*, 219–222. <https://doi.org/10.1145/3383923.3383965;topic=topic:conference-collections>iceit;page:string:article/chapter>
- Jones, G. R., & George, G. M. (2019). *Contemporary Management*. McGraw-Hill Education.

- Joo, Y. J., Park, S., & Shin, E. K. (2017). Students' expectation, satisfaction, and continuance intention to use digital textbooks. *Computers in Human Behavior*, 69, 83–90. <https://doi.org/10.1016/j.chb.2016.12.025>
- Keedle, H., Young, K., Arundell, F., & Burns, E. (2024). Midwifery student engagement with digital interactive books: A cross sectional survey. *Women and Birth*, 37(6), 101826. <https://doi.org/https://doi.org/10.1016/j.wombi.2024.101826>
- Khomaria, I. N., & Puspasari, D. (2022). Pengembangan e-modul berbasis model learning cycle pada materi media komunikasi humas kelas xi otkp universitas pahlawan tuanku tambusai (Development of e-modules based on the learning cycle model on the material of public relations communication media for class XI OTKP, Pahlawan Tuanku Tambusai University). *Jurnal Pendidikan Dan Konseling*, 4(5), 2492–2503.
- Koc, M., & Barut, E. (2016a). Development and validation of New Media Literacy Scale (NMLS) for university students. *Computers in Human Behavior*, 63, 834–843. <https://doi.org/10.1016/j.chb.2016.06.035>
- Koc, M., & Barut, E. (2016b). Development and validation of New Media Literacy Scale (NMLS) for university students. *Computers in Human Behavior*, 63, 834–843. <https://doi.org/10.1016/j.chb.2016.06.035>
- Lokar, M. (2015). The future of e-textbooks. *International Journal for Technology in Mathematics Education*, 22(3), 101–106.
- Manalu, B. H. (2019). Students perception of digital texts reading: A case study at the english education department of universitas kristen indonesi. *JET (Journal of English Teaching)*, 5(3), 191. <https://doi.org/10.33541/jet.v5i3.1312>
- Matlala, M. E., Ncube, T. R., & Parbanath, S. (2022). The state of digital records preservation in South Africa's public sector in the 21st century: A literature review. *Records Management Journal*, 32(2), 198–212. <https://doi.org/10.1108/RMJ-02-2021-0004>
- Mayer, R. E. (2021a). *Evidence-Based Principles for How to Design Effective Instructional Videos*.
- Mayer, R. E. (2021b). *Evidence-Based Principles for How to Design Effective Instructional Videos*.
- Millar, M., & Schrier, T. (2015). Digital or printed textbooks: Which do students prefer and why? *Journal of Teaching in Travel and Tourism*, 15(2), 166–185. <https://doi.org/10.1080/15313220.2015.1026474>
- Nelson, L. L., Arthur, E. J., Jensen, W. R., & Van Horn, G. (2011). Trading textbooks for technology: New opportunities for learning. *Phi Delta Kappan*, 92(7), 46–50.
- Ningsih, T., Ma'rufah, D. W., Hermawan, R., Sholehuddin, M. S., & Fatimah, S. (2021). Shaping students' character through edutainment strategies. *Journal of Educational and Social Research*, 11(6), 173–185. <https://doi.org/10.36941/jesr-2021-0138>
- Oktaviara, R. A., & Pahlevi, T. (2014). Pengembangan e-modul berbantuan kvisoft flipbook maker berbasis pendekatan saintifik pada materi menerapkan pengoperasian aplikasi pengolah kata kelas x otkp 3 smkn 2 blitar rhesta ayu oktaviara triesninda pahlevi (Development of e-module assisted by Kvisoft Flipbook Maker based on scientific approach on material applying word processing application operation for class X OTP 3 SMKN 2 Blitar Rhesta Ayu Oktaviara Triesninda Pahlevi). *Studi, Program Pendidikan, Perkantoran, Administrasi Ekonomi, Fakultas Surabaya, Universitas Negeri Studi, Program Pendidikan, S Perkantoran, Administrasi Ekonomi, Fakultas Surabaya, Universitas Negeri*.
- Ramadhina, S. R., & Pranata, K. (2022). Pengembangan e-modul berbasis aplikasi flipbook di sekolah dasar (Development of e-modules based on flipbook applications in elementary schools). *Jurnal Basicedu*, 6(4), 7265–7274.
- Safitri, E. R., & Nurkamilah, S. (2020). *Pengembangan bahan ajar digital berbasis android untuk peserta didik berkebutuhan khusus* (Development of Android-based digital teaching materials for students with special needs). 3, 296–304.

- Setiyaningsih, I., Adiwijaya, P. A., & Numertayasa, I. W. (2024). Development of e-flashcard vocabulary on i like fruits as a learning media assisted by heyzone flipbook. *Edunesia : Jurnal Ilmiah Pendidikan*, 5(2), 941–956. <https://doi.org/10.51276/edu.v5i2.912>
- Shieh, M. D., & Hsieh, H. Y. (2021). Study of influence of different models of e-learning content product design on students' learning motivation and effectiveness. *Frontiers in Psychology*, 12, 1–4. <https://doi.org/10.3389/fpsyg.2021.753458>
- Simonson, M., Zvacek, S. M., & Smaldino, S. (2019). *Teaching and learning at a distance: Foundations of distance education 7th edition*.
- Singh, R. (2016). Learner and in digital era : Some issues and challenges. *International Education & Research Journal [IERJ]*, 2(10), 92–94.
- Siyoto, S., & Sodik, M. A. (2015). *Dasar metodologi penelitian* (Basic research methodology). Literasi media publishing.
- Smith, A. (2020). *Digital record management: A practical approach*. Wiley Blackwell.
- Suhartini, S., & Ulfa, S. M. (2024). Students' perception of digital texts reading: a case study at the english education department of stkip pgri bangkalan. *ELTR Journal*, 8(2), 144–154. <https://doi.org/10.37147/eltr.v8i2.184>
- Sulaiman, A., & Dashti, A. (2018). Students' satisfaction and factors in using mobile learning among college students in kuwait. *Eurasia Journal of Mathematics, Science and Technology Education*, 14(7), 3181–3189. <https://doi.org/10.29333/EJMSTE/91669>
- Thiagarajan, S., Semmel, D. S., & Semmel, M. I. (1974). *Instructional development for training teachers of exceptional children: A sourcebook*. Indiana University.
- Utami, Y. P., & Suswanto, B. (2022). *The educational curriculum reform in indonesia : Supporting "independent learning independent campus (MBKM)." 01041*.
- Utari, V. T., Maryani, I., Hasanah, E., & Mardati, A. (2025). DOI: 10.23917/ijolae.v7i1.23450 Received: March 8. 7(1), 136–153. <https://doi.org/10.23917/ijolae.v7i1.23450>
- Weisberg, M. (2011). Student attitudes and behaviors towards digital textbooks. *Publishing Research Quarterly*, 27(2), 188–196.
- Widana, I. W., Sumandya, I. W., Sukendra, K., Sudiarsa, I. W. (2020). Analysis of conceptual understanding, digital literacy, motivation, divergent thinking, and creativity on the teacher's skills in preparing HOTS-based assessments. *Jour of Adv Research in Dynamical & Control Systems*, 12(8), 459-466. <https://doi.org/10.5373/JARDCS/V12I8/20202612>
- Widana, I. W. (2020). The effect of digital literacy on the ability of teachers to develop HOTS-based assessment. *Journal of Physics: Conference Series 1503* (2020) 012045. <https://doi.org/10.1088/1742-6596/1503/1/012045>
- Wu, T. T., & Chen, A. C. (2018). Combining e-books with mind mapping in a reciprocal teaching strategy for a classical chinese course. *Computers & Education*, 116, 64–80.
- Wulandari, E. U. P., Wahyuni, S., & Rusdianto, R. (2023). Development of Android-based mobile-learning module to improve student's digital literacy. *Jurnal Pembangunan Pendidikan: Fondasi Dan Aplikasi*, 11(1 SE-Articles), 11–22. <https://doi.org/10.21831/jppfa.v11i1.58417>
- Xu, D. (2019). Design and research of new english listening and speaking teaching mode under the background of mobile internet. *ACM International Conference Proceeding Series*, 167–172. <https://doi.org/10.1145/3338147.3338168;journal:journal:acmotherconferences;ctype:stri ng:book>