Feasibility Test of Case Study Oriented Textbooks in Educational Digital Psychology Courses

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Abstract: This study aims to test the feasibility of a case study-oriented textbook in the course of educational digital psychology. This research is an R&D study using the ADDIE development model. The study was conducted on 2nd semester biology students in the Biology Education Study Program, University of Jambi. The instruments used were expert validation questionnaires, lecturer and student response questionnaires on the quality of the book. The data analysis techniques used were expert validity score tests and student response questionnaire scores. In the validity test, the results of the study showed that the developed textbook was very feasible to be used in learning activities with a percentage score of 95% in terms of material feasibility, and 90% in terms of media feasibility. So, from the results of the expert assessment, it can be concluded that the case study-oriented textbook in the Educational Digital Psychology course is very feasible to be used in learning activities.

Keywords: Case study; Critical thinking; Development; Feasibility test; Textbook

Introduction

The 21st century is an era of information and communication technology revolution that has a significant impact on almost all aspects of life, including education. In the era of digital transformation, the development of information technology has had a significant influence on various aspects of life, including in the field of education. Based on the results of Supratman (2018), young children (especially students or college students) spend 79% of their time accessing the internet, both in communication, seeking entertainment, accessing learning materials, making assignments, and so on. The use of the internet (digital technology) in every life will have an impact on the psychology and behavior of individuals, including students (Ilic, 2015).

The development of digital technology is changing the world of education and broadening the path for innovation in learning. In this context, digital psychology becomes a significant field and plays a vital role in the transformation of 21st century education. Digital psychology is a branch of science that studies human interaction with technology and is a relevant discipline to support understanding of the challenges and opportunities of education in the digital era. Digital psychology can respond to the needs of today's education and support more effective transformation in the education system. The Digital Psychology of Education course is one of the courses that has an important role in preparing students to be able to analyze and develop psychological approaches that are in accordance with the basis of learning in today's education.

However, the main challenge in learning this course is the lack of contextual and applicable textbooks, especially textbooks that are relevant to the current development situation. Many available teaching materials are theoretical and do not accommodate a practical approach that allows students to analyze and have problem-solving skills in dealing with problems faced in their lives or in their environment. This has the potential to

hinder students' understanding of the dynamics of digital psychology in the world of education.

In addition to the lack of textbooks, the obstacle faced in learning the digital psychology of education course is the development of students' critical thinking skills. Critical thinking skills are a very important key in today's digital era. Students are required to be able to evaluate information objectively, consider the impact of technology, and create innovative solutions to various digital education problems. Unfortunately, the learning materials currently available are mostly theoretical and do not provide enough space for students to apply theory to real-life situations.

To solve this problem, a textbook is needed that is oriented towards real cases to connect theoretical and practical materials. Case study learning is learning that can provide a learning experience that allows students to think critically, learn to ask questions, solve problems, and reconstruct their own knowledge from solving cases (Werdiningsih & Wahyuni, 2021). Case study learning allows students to experience deeper learning from the cases studied, so that it can help students construct their understanding of the material being studied (Mulyana, 2003). Case study learning also allows students to learn concepts through real situations, so that they can be directly involved in analyzing problems, evaluating data, and designing relevant solutions (Putri et al., 2024). This method not only improves understanding of ideas but also trains critical thinking skills by using evidence as a basis for decision making (Chronopoulou et al., 2016; Mahdi et al., 2020; Nasution, 2019).

In Educational Digital Psychology, case studies can involve topics such as the impact of social media on student development, the ethics of using technology in learning, mental health issues from online learning, and how to align technology with the curriculum. By analyzing these cases, students are encouraged to think logically, explore multiple perspectives, and formulate organized arguments.

It is hoped that the development of this case study-oriented textbook can improve the quality of learning in the Digital Educational Psychology course and provide students with critical thinking skills that are in accordance with the demands of today's education world.

Method

The research is a Research and Development (R&D) study. This research is conducted to produce a particular product or output and test the product (feasible or not) by involving users of the product (Sugiyono, 2021). The development model used is the ADDIE development model (Analyze, Design, Development, Implementa-

tion, and Evaluation) (Branch, 2009). This research produces a product in the form of a case study-oriented textbook to improve students' critical thinking skills. The steps in developing the ADDIE model can be seen in Figure 1.
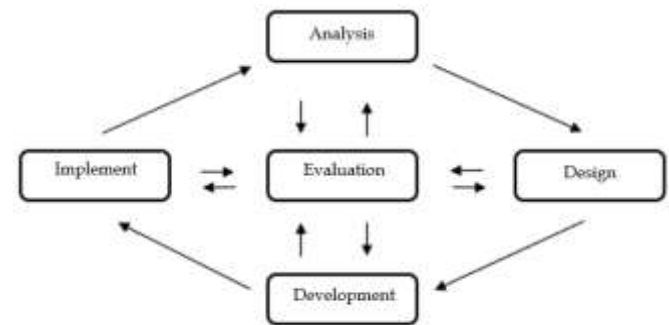

Figure 1. ADDIE development model

The initial stage of the textbook development process is to conduct a needs analysis, media analysis, and material analysis. The needs analysis is conducted by interviewing the lecturers in charge of the course and distributing the needs analysis questionnaire to students. The needs analysis is conducted to obtain information related to the needs of learning media.

At the design stage, the product design to be made is carried out. At this stage, the activities carried out are in the form of compiling a product design framework that is developed such as a cover design, the arrangement of materials contained in the book and collecting various references. At the development stage, an assessment of the product developed is carried out by experts, lecturers and students. After the product is declared valid and feasible, it is continued with small group and large group trials. If there are suggestions for revisions to the product, implementation and evaluation are carried out.

Implementation is carried out to see the impact of using the developed product on critical thinking skills. While the evaluation stages carried out consist of two types, namely formative evaluation and summative evaluation. Formative evaluation is carried out to collect data at each stage used to improve the developed product. Summative evaluation is carried out at the end of the program to determine the effect of the developed product on student learning outcomes.

Data collected through interviews related to the need for textbooks, validation questionnaires, and questionnaires of lecturers and students' responses. Product validation was carried out by experts and calculated using a formula. The calculation results were converted according to the validity criteria as shown in Table 1 represented by Formula 1.

$$P = \frac{f}{N} x100\% \qquad (1)$$

Where:

P = Questionnaire data percentage figures

f = Total score obtained

N = Maximum total score

Based on these calculations, the percentage range and qualitative criteria for Riduwan (2011) modified media feasibility test can be determined as shown in Table 1.

Table 1. Validation Criteria

Range Score	Criteria	Interpretation
0% ≤ x ≤ 20%	Not valid	Not suitable, must be completely revised
20% < x ≤ 40%	Less valid	Not good enough, lots of things need to be revised
40% < x ≤ 60%	Quite valid	Decent enough, quite a few revisions
60% < x ≤ 80%	Valid	Decent, revision as necessary
80% < x ≤ 100%	Very valid	Very good, no need for revision

In addition to expert assessments, assessments were also carried out by lecturers and students through product trials. Product trial data came from student response questionnaires. The response questionnaires used a likert scale assessment consisting of five (5) assessment scales, namely:

Table 2. Scoring of Student Response Questionnaire

Answer options	Score
Strongly agree	5
Agree	4
Disagree	3
Don't agree	2
Totally disagree	1

The results of the student response questionnaire were then analyzed using the Formula 1. The calculation results obtained can be grouped into the following criteria as represented by Table 3. The assessment results are said to be good if >80% of respondents (test subjects) provide positive responses to the aspects listed in the questionnaire.

Table 3. Interpretation Criteria for Attractiveness

Evaluation Score (%)	Criteria
81 - 100	Very interesting
61 - 80	interesting
41 - 60	quite interesting
21 - 40	not attractive
0 - 20	very uninteresting

Result and Discussion

Analysis Stage

Based on the needs analysis, it was found that out of 101 students, 82% stated that they had difficulty obtaining references relevant to the digital educational psychology course, requiring systematic references in accordance with the curriculum and RPS. In addition, a needs analysis was also conducted with the lecturer in charge of the Digital Educational Psychology course by conducting interviews. Based on the interview results, it can be concluded that a book is needed that presents concepts sequentially, coherently, and structured according to the curriculum. According to the lecturer, the existence of structured and systematic teaching materials can help understand the material being studied. In addition, the existence of teaching books can improve the quality of learning, especially if the book contains exercises or case studies that students can work on. According to Puspasari (2019), teaching materials play an important role in relation to the quality of lectures, one example of teaching materials is in the form of textbooks or teaching books.

Textbooks are a set of lesson substances developed based on the curriculum content that must be achieved by students as learners in learning activities (Ball & Feiman-Nemser, 1988; Sihotang & Sibuea, 2015; Stern & Roseman, 2004). Textbooks that are arranged systematically can create an environment or atmosphere that allows students to learn.

Design Stage

The main objective of this stage is to create a case study-oriented textbook design. The main thing that needs to be considered so that the media developed looks attractive is the design of the product itself (Wicaksana & Natalia, 2023). The design of the textbook developed is adjusted to the results of the needs analysis (Harlis & Aswan, 2024). In addition to the display design, the material contained in the textbook is adjusted to the curriculum and RPS for the Digital Psychology of Education course.

In addition, at the beginning of each chapter, a case study is added that is adjusted to the discussion of the material in each chapter. The addition of this case study aims to train students to think critically in solving problems. According to Natalia (2021), providing cases in teaching materials can train students' critical thinking skills both in the learning process and in everyday life.

In addition to adding cases, the material in the textbook is also taken from research articles. According to Siburian et al. (2023) adding research results as teaching materials in books can enrich the material. The same

thing was also conveyed by Primiani (2014) that the research results contained in textbooks can add material in detail and can add insight for users.

Development Stage

The completed book draft was validated by experts. The assessment process was carried out twice by each material expert and media expert. The results of expert validation are presented in Table 4.

Table 4. Material Expert Validation Results

Evaluation	Score %	Criteria
First Validation	60	Valid
Second Validation	95	Very worth it

Table 5. Suggestions for Improvement from Material Experts

Assessment aspects	First validation suggestion	Second validation suggestion
The book components are in accordance with textbook rules	Already appropriate	Already appropriate
Compliance of material with RPS	Already appropriate	Already appropriate
The accuracy of the chapter title with the content of the material in each chapter	Match the chapter title with the sub-material in the RPS	Already appropriate
Clarity of instructions in each chapter	Already appropriate	It's very clear
Clarity of content framework	It is best if the contents of the book have a clear structure and have visualizations that support the material so that users can easily follow the learning flow.	It's very clear
Suitability of learning objectives with material presentation	Learning objectives should be more specific, measurable and relevant to the material presented in each chapter.	It's very clear
Clarity of case studies with description of materials	The case studies presented should be case studies that are close to the students' environment or familiar to the students.	Already appropriate
Textbooks can improve students' critical thinking skills	Provide probing questions to foster students' critical thinking skills.	Can improve students' critical thinking skills

From Table 4, in the validation of the two developed textbooks, they have been declared valid and very feasible to be tested in learning. In addition to the assessment in the form of quantitative data, the developed textbooks are also assessed in qualitative form, namely in the form of suggestions for improvement from experts. The suggestions for improvement can be seen in Table 5.

After the assessment by the material expert, the assessment was continued by the media expert. The media expert assessed the developed textbook in terms of design quality and completeness of components in each chapter of the textbook. The results of the media expert assessment are presented in Table 6.

Table 6. Media Expert Validation Results

Evaluation	Score %	Criteria
First Validation	48	Quite valid
Second Validation	90	Very valid

Based on Table 6, the assessment of media experts was carried out twice. The results of the media expert assessment can be concluded that the developed textbook is very valid and very worthy of being tested in learning.

Like the assessment of material experts, in the assessment of media experts there are also suggestions for improvement, especially in the readability of the writing, font size and sentence structure (Ali et al., 2013). The use of fonts and readability of the writing are very important in a textbook, because the quality of good teaching materials can be seen from the use of good language (Pribadi, 2017). The following is presented in Table 7 suggestions for improvement from media experts.

Table 7. Media Expert Validation Results

Assessment aspects	First validation suggestion	Second validation suggestion
The attractiveness of the cover design	The writing on the cover is unclear, it is better to use letters that are easy to read and the cover color should be a bright color.	The cover appearance is already attractive, there are no suggestions for improvement.

Assessment aspects	First validation suggestion	Second validation suggestion
Clarity of writing/typing	The writing is not clear, it is better to use the type of font or writing that is usually used for textbooks.	The writing is clear and readable
The font size displayed is clearly legible	Quite readable	The letters used are clearly legible
The language used is easy to understand	The language used is easy to understand	The language used is easy to understand
Accuracy of placement of illustration images	Use illustrations according to the material in each chapter.	The image illustrations used are appropriate and in accordance with the material.

The assessment and suggestions given by both experts are very helpful in perfecting the developed textbook. Because according to Trianto (2009) a good textbook must go through good validation. The positive response given by the experts is a benchmark for whether the developed textbook is suitable for use in learning or not.

Implementation Stage

After the developed case study-oriented textbook is declared valid and suitable for use in learning, the next step is implementation. This stage is testing the product in small groups and large groups. Small group trials aim to identify errors or problems that arise when the developed product is used in learning (Michaelsen et al., 2023). Small group trials were conducted on 6 respondents. The results of the small group trials can be seen in Table 8.

Based on the results of the small group trial (Table 8), the attractiveness presentation value was 80%, which met the criteria of "Very interesting". In this small group trial, it is recommended to make the book size according to Unesco standards so that the appearance is more attractive.

Table 8. Results of Small Group Trials

Statement	Score	Criteria
The physical appearance of the case study-oriented textbook is interesting	4	Agree
The type and size of the letters are easy to read	4	Agree
The language used in case study-oriented textbooks is clear and easy to understand.	4	Agree
The instructions in each chapter are clear and easy to understand.	4	Agree
The presentation of the material in each chapter is clear and easy to understand.	5	strongly agree
The cases presented in each chapter correspond to the material studied.	4	Agree
The cases presented in the textbook can increase interest in learning the Digital Psychology of Education course.	5	strongly agree
Learning with case study-oriented textbooks can encourage me to be active in learning.	5	strongly agree
case study-oriented textbooks direct me to think critically in solving the cases presented	5	strongly agree
case study-oriented textbooks encourage me to further improve literacy related to the Digital Psychology of Education course	5	strongly agree
Amount	45	
Percentage	90%	Very interesting

After conducting small group trials and changing the shape and size of the developed textbook as suggested, a large group trial was continued. The results of the large group trial can be seen in Table 9.

The results of the large group trial obtained a participant score for the attractiveness of the developed textbook of 94.7% with a very interesting category. So based on the results of the small group and large group trials, it can be concluded that the case study-oriented textbook on the Digital Psychology of Education course is very interesting because it can foster interest in learning, increase student activity, and train students' critical thinking skills. According to Sirait (2016), interest has a big influence on the learning process. With the existence of interesting teaching materials, it can increase interest in learning and influence student learning activities.

Table 9. Results of Large Group Trials

Statement	Score	Criteria
The physical appearance of the case study-oriented textbook is interesting	5.00	Agree
Easy to read font type and size	4.50	Agree
The language used in case study-oriented textbooks is clear and easy to understand.	4.35	Agree
The instructions in each chapter are clear and easy to understand.	4.00	Agree
The presentation of the material in each chapter is clear and easy to understand.	5.00	strongly agree
The cases presented in each chapter correspond to the material studied.	4.50	Agree

Statement	Score	Criteria
The cases presented in the textbook can increase interest in learning the Digital Psychology of Education course.	5.00	strongly agree
Learning with case study-oriented textbooks can encourage me to be active in learning.	5	strongly agree
case study-oriented textbooks direct me to think critically in solving the cases presented	5	strongly agree
case study-oriented textbooks encourage me to further improve literacy related to the Digital Psychology of Education course	5	strongly agree
Amount	47.35	
Percentage	94.7%	Very interesting

The development of case study-oriented textbooks in the Digital Psychology of Education course is one form of learning media innovation that provides benefits such as fostering interest in learning, motivation and training students' critical thinking skills. As conveyed by Rivai et al. (2013) that a teaching media can be said to provide benefits if the media can foster learning motivation, help understanding the material, and make students more active in the learning process. In addition, the presentation of cases in each chapter is expected to train and improve students' critical thinking skills. Case studies are a form of learning that leads to solving a case and is closely related to solving problems in a wider environment (Arum, 2014).

Conclusion

Based on the results of the research that has been conducted, it can be concluded that the case study-oriented textbook developed using the ADDIE development model is valid and very suitable to be used as teaching material in Digital Educational Psychology lectures.

Author Contributions
Desfaur Natalia contributed to the drafting of the presented ideas, checking related to the context and writing the article. Dara Mutiara Aswan contributed to the writing of the article manuscript, and Mia Aina verified the research methodology. In general, all authors discussed the results and contributed to the final manuscript.

Conflicts of Interest
The author declares that there is no conflict of interest in the research or writing of this article.

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