

INTERACTIVE LEARNING MEDIA DEVELOPMENT TO ENCOURAGE THE STUDENT'S MOTIVATION ON MONETARY ECONOMICS

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ABSTRACT

In this rapidly advancing digital era, every lecturer or teacher must innovate their learning media. Students in this era, often referred to as Gen Z, are highly familiar with technological advancements, making it necessary for the teaching methods to be adapted so that the material being delivered can be effectively understood and well received by the students. This study aims to develop learning media in the form of an interactive e-book using Lectora Inspire software for the Money Demand and Money Supply topics in the Monetary Economics subject using the Learning Cycle 7E method which requires the students to actively participate in the learning activity. The feasibility test of interactive learning media is based on validation assessment from material experts, linguists, practitioners (lecturers), and students in the Monetary Economics course. The type of research uses a development method (Research and Development) with the ADDIE development model (Analysis, Design, Development, Implementation, and Evaluation). The results of this study indicate that the interactive e-book using Lectora software is very suitable as learning media in monetary economics courses and it is proven to enhance student motivation to learn the subject and increase students' understanding of the money demand and money supply materials in the Monetary Economics course.

Keywords: *Interactive learning media, lectora inspire, addie, learning cycle 7e*

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INTRODUCTION

Learning is an activity to convey information to achieve goals that are specifically tied to environmental factors such as learning models, strategies, media, and infrastructure. Media itself can be defined as a communication method and source of information. It means that media can transfer information from the source to the recipient of the information. So, it can be seen that the purpose of the media is to facilitate communication. Meanwhile, a media can be called learning media if it

can convey information for learning purposes. Learning media is a physical way to convey learning material. Arsyad (2013) also mentions various functions of learning media, consisting of (1) as a tool that can clarify, simplify, and speed up the delivery of learning material; (2) as a component of the learning sub-system; (3) as learning director; (4) as a generator of motivation and attention; (5) improving learning outcomes; (6) reducing the occurrence of verbalism; and (7) overcome limitations of space, time, energy, and sensory power.

The COVID-19 pandemic in 2020 has made the emergence of new-normal-era policies, including the implementation of online learning. That's certainly a new challenge for lecturers and students to adjust the learning process using online. The lecturer needs to improve their learning method so that they can convey material appropriately to students even through distance learning. Distance teaching and learning activities are usually carried out using video conferences such as Google Meetings or Zoom Meetings, or by uploading all of the learning materials (narrated video material, powerpoints (PPT), modules, e-books, etc.) into a Learning Management System (LMS) like Spada or Open Learning. One of the big challenges of online learning is creating two-way active communication or implementing an active learning model that involves all students being able to participate actively during the learning activities. Hernández-García et al. (2024) proved that using LMS in the learning process needs context-specific considerations about the learning process and building the instructional design is important to enhance the student's academic performance. Sri Wulandari et al. (2022) Interactive media can solve this problem because it is supported by interactive functions. With online learning, lecturers cannot only rely on conventional learning media such as physical books or modules. Because, during the online learning policy is implemented, not all students have access to physical books as a learning media, and not all students have high reading awareness. Meanwhile, the teacher-centered learning (TCL) learning model with the lecture method also cannot be applied continuously because it does not involve students actively participating during teaching and learning activities, so lecturers cannot measure the level of student understanding of the material that has been delivered other than through the evaluation results. Hadiananto et al. (2023) show that learning media is quite effective in improving students' scientific literacy skills. Setyoningtyas & Ghofur (2021) shows that the development of innovations in learning media can increase student understanding of the material. Marlina et al., (2024) also show that interactive learning media can enhance student's critical thinking skills. In the initial stage of this research, the researchers surveyed the conditions, needs, and expected changes to the learning system among lecturers and students at the Faculty of Economics and Business, UMS. The survey results show that 83,3% of lecturers at the Faculty of Economics and Business, UMS, stated the need for innovation in learning media, and 74% of students expressed interest in learning through interactive learning media to support their learning activities, both online and offline. Therefore, it proved the urgency of learning innovations that can actively involve students in the teaching and learning process even though learning

activities are carried out remotely online. Research on the development of learning media has indeed been widely conducted, but none has focused on developing interactive learning media for the monetary economics course.

This research intends to (1) develop learning media by innovating in the form of interactive learning media that can be accessed online or by Android applications for the chapter Money Demand and Money Supply in Monetary Economics subject. (2) Test the feasibility of the interactive learning media that was developed. The purpose of developing this learning media is among others to increase student interest in learning, especially against monetary economics courses. Kurnia Khikmawati et al. (2021) show that the use of e-books as a learning media is proven to increase student motivation. Rifqi et al. (2018); Wahyono (2019); Pardede & Sitorus (2021); and Tri Octavina (2021) also show that the use of Android-based interactive e-books can increase student achievement and motivation. Wibawa et al. (2019) and Saengngam et al. (2024) proved that the used of smartphone-based applications as learning media can make students more enthusiastic about participating in learning activities. Moreover, the interactive learning media in this study used the learning cycle 7E method that involves students actively in the learning process.

RESEARCH METHOD

This research uses research and development methods (RnD), which is a research method used to produce certain products and test the feasibility of these products (Sugiyono, 2015). To develop and test product feasibility, this study uses the ADDIE model which includes five stages: analysis, design, development, implementation, and evaluation. The stages in the development of the ADDIE model are as follows (Daryanes et al., 2023).

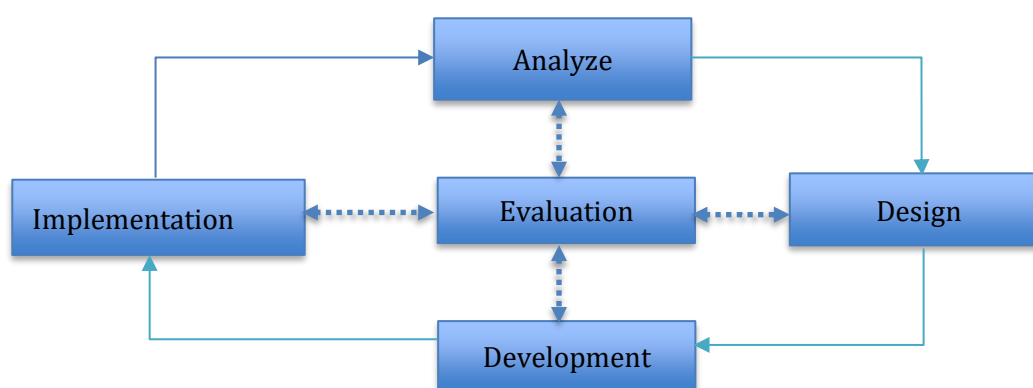


Figure 1.
ADDIE Model Development Stages

The subjects of this study were one material expert, one linguist, one learning practitioner, and 3rd-semester students who took the Monetary Economics course at the Economics Department, Faculty of Economics and Business, University of

Muhammadiyah Surakarta, consisting of 180 students. The object of this research is interactive learning media using android-based active learning learning methods developed using Lectora Inspire software. This interactive learning media can be accessed offline in the form of applications and online. Students can immediately provide feedback, answer questions, play video materials, and take quizzes. The development of learning media using Lectora Inspire software has been done by several researchers before. Shalikhah & Primadewi (2017); Mahmudah (2018); Nurdina et al. (2019) and Mahliatussikah (2021) proved that the interactive learning media they developed using Lectora Inspire proved feasible for use in learning activities. Feasibility aspects to be tested on the object of research include software engineering aspects, learning design aspects, and interactive or visual communication aspects.

In this study, we develop an interactive e-book using *Lectora Inspire* software and adopt ADDIE model development steps. The following development procedures can be seen as follows (Mahmudah, 2018).

a) Analysis Stage

The analysis stage is the first step taken to analyze the needs that need to be developed in learning activities, and to obtain information on learning media needed in the Monetary Economics course, at the Economics Department, Faculty of Economics and Business, Universitas Muhammadiyah Surakarta.

b) Design Stage

The design stage is when researchers begin to design the concept of learning media to be developed. Includes the arrangement of materials, questions, images characters to be used, and so on.

c) Development Stage

At this stage, researchers begin to make or develop learning media, which is then validated by various experts, such as material experts, linguists, and learning practitioners.

d) Implementation Stage

At the implementation stage, the interactive learning media that has been developed is implemented to be used in the learning process of 3rd-semester students who take the Monetary Economics course for the academic year 2023/2024.

e) Evaluation Stage

The evaluation stage is the last stage to measure the success of the learning media development objectives, which is the result of the final product feasibility analysis.

Data collection techniques use validation questionnaires addressed to material experts, linguists, and practitioners (lecturers). The collected data was then analyzed using the Likert scale with scores ranging from 1 to 5 for each statement on the feasibility testing results provided by experts and practitioners. The scoring criteria for the questionnaire can be seen in Table 1 below.

Table 1.

Likert Scale Score Criterion

Answer	Score
Very Good	5
Good	4
Moderate	3
Less	2
Very Less	1

Source: Sugiyono (2015)

The data that has been collected from the results of testing by experts and practitioners is then analyzed and calculated the percentage using a formula developed as follows.

$$Percentage = \frac{\sum ni (Score)}{\sum N (Score Maximum)} \times 100$$

The quantitative data from the questionnaire results are then interpreted into qualitative data using the following criteria shown by Table 2. Based on the criteria shown by Table 2, if the results obtained are more than 75% (feasible) for all aspects of testing both by material experts, linguists, and learning practitioners, then the interactive learning media (interactive e-book) for the Monetary Economics subjects is suitable for use as a learning media in the monetary economics class. On the contrary, if the score results are under 75%, it means the interactive learning media needs to be improved again before being implemented in the classroom.

Table 2.

Learning Media Feasibility Criteria

No.	Interval	Criteria
1.	90% - 100%	Very Feasible
2.	75% - 89%	Feasible
3.	65% - 74%	Moderate
4.	55% - 64%	Less Feasible
5.	0% - 54%	Very Less Feasible

Source: Agung (2010)

RESULTS AND DISCUSSION

The development of an interactive learning media using Lectora Inspire is an adaptation and modification of the research and development steps of the ADDIE model which includes the stages of analysis, design, development, implementation, and evaluation. In this study, we also used the Learning Cycle 7E method for the learning model. Karagöz & Saka (2015); Aviyaniti et al. (2024); Ali (2024); and Mekonnen et al. (2024) show that learning cycle 7E method is suitable for

interactive learning and can enhance the student's learning outcomes. The results of learning media development using the ADDIE model in this study are as follows.

Analysis Stage

At this stage, researchers make observations and distribute questionnaires to all lecturers and students at the Faculty of Economics and Business, Universitas Muhammadiyah Surakarta, especially students of the Economics Department regarding the importance of innovation in learning media that have been used. This survey was conducted to be able to analyze the situation and find out the needs of both lecturers and students from learning activities. The survey results at the analysis stage can be seen in Figure 2.

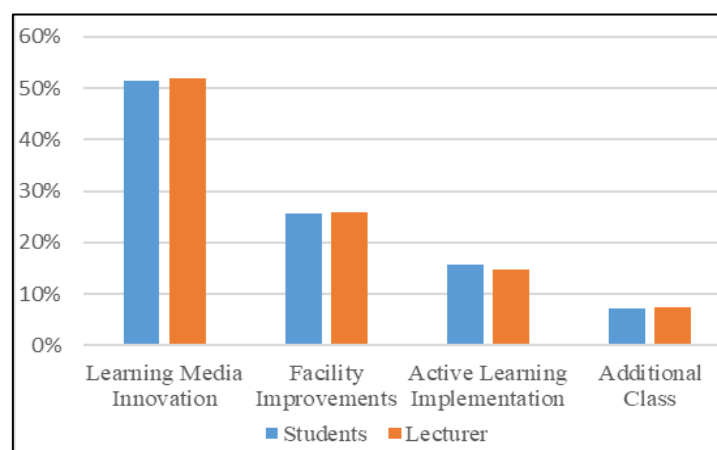


Figure 2.

Survey Results of Expected Innovation in Learning Activities in FEB UMS

Source: Processed Primary Data

From the survey results in Figure 2 above, it can be seen that the form of innovation in learning activities most needed by students and lecturers is innovation in the learning media used. Based on the results of the analysis, researchers intend to develop learning media in the form of interactive e-books developed using Lectora Inspire software. Students or lecturers can use this learning model in the offline learning process or through online learning by LMS Spada UMS.

Design Stage

At this stage, researchers compile material and design the overall learning design concept on the storyboard and make the articulate storyline. Mas'adah et al., (2019) said that the articulate storyline is equipped with various operational features including characters, easier timing adjustments, video, and music. It also includes an evaluation question feature, and allows each lecturer to adjust the assessment to their respective material. The concept of learning media developed is an interactive e-book that is not only material-based but invites students to explore the material more deeply. The material is presented in more detail in modules that can be used as a companion for students in learning besides this interactive e-book.

We used the Learning Cycle 7E method for the learning model. Karagöz & Saka (2015) and Mekonnen et al. (2024) explain that the Learning Cycle 7E method consists of the elicit stage, engage stage, explore stage, explain stage, elaborate stage, evaluate stage, and extend stage. The first stage in the Learning Cycle 7E model is the elicit stage, where we give a question at the beginning of the material to arouse students' motivation and curiosity towards the material. The elicit stage of Money Demand and Money Supply material in this interactive e-book can be seen in Figure 3. Second, at the engage stage, we present a video material that can help students to better understand the material. Then we ask students a question related to the video of the material that has been shown to see the depth of the material they got from the video. Third, at the explore stage, we asked students to discuss as seen in Figure 4. Fourth, at the explain stage, students explain the results of their discussion in front of the class and upload them to the SPADA LMS, in addition, at this stage the lecturer also provides affirmation of the material or develops the material that has been learned by the student.



Figure 3.

Elicit Stage Display for the chapter Money Demand & Money Supply
Source: Application Developed by Author (2023)

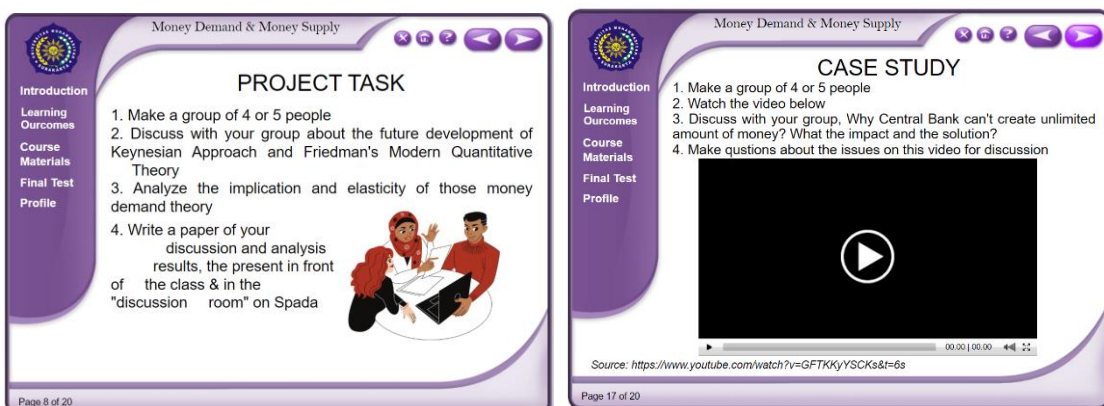


Figure 4.

Explore Stage Display for the chapter Money Demand & Money Supply
Source: Application Developed by Author (2023)

The fifth stage is the elaborate stage which can be seen in Figure 8. Previously we presented a video to students and then asked a question as shown in Figure 8, so they can apply the symbols or theory from the example issues in the video they have studied. The sixth stage is evaluation, where lecturers assess the results of student discussions and presentations through observation during the process. The last stage is extend, at this stage, lecturers stimulate students to relate the concepts they have learned with other theories that are new or have not been learned. The theory that has been learned shouldn't be confined to one situation but also be applied to novice situations (Noreen et al., 2024). This stage can be done by asking questions that can force students to think critically or provide information on the latest issues related to the topic that has been studied. This stage can be seen at Figure 5.

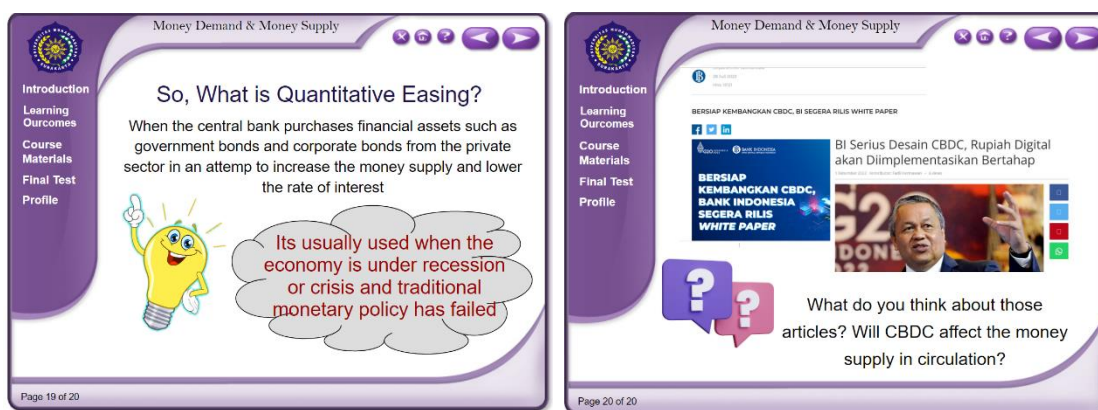


Figure 5.

Extend the steps of the Interactive E-book

Source: Application Developed by Author (2023)

Development Stage

In this step, researchers create interactive learning media using Lectora Inspire software. The display of this e-book contains instructions, course learning outcomes (CLO), source of reference used in the chapter, materials, discussion questions, evaluations, and profiles. Before implementing by students, this interactive learning media was first carried out through a feasibility test by material experts, the Head of the Economics Department, Universitas Muhammadiyah Surakarta, learning practitioners, and lecturers with cognate concentrations in Economics Development, Universitas Muhammadiyah Surakarta. The interactive learning media products developed can accessed through the link below: <https://ilfadhrudr3txfmrvh1xq.on.driv.tw/FEBUMS/UMS/febums.html>. The initial display of the interactive e-books can be seen in Figure 6.

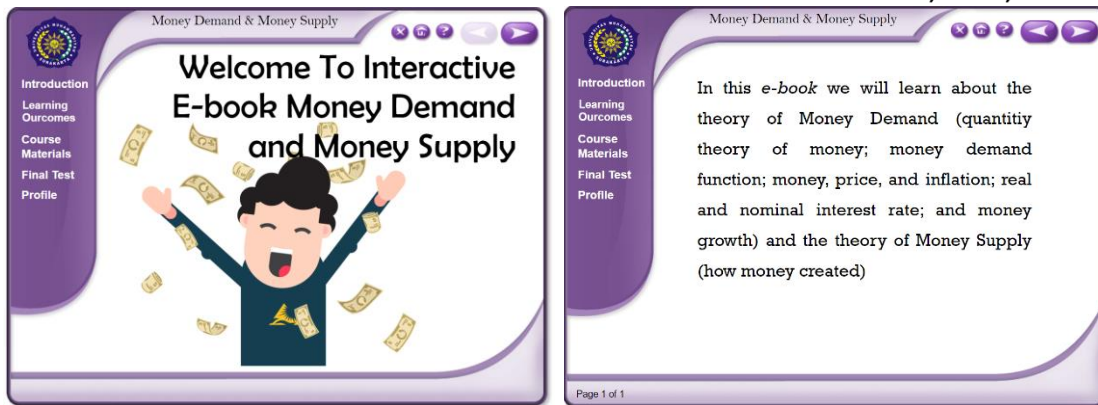


Figure 6.

Cover and Initial display (1st page) of the interactive e-book for chapter Money Demand and Money Supply

Soure: Application Developed by Author (2023)

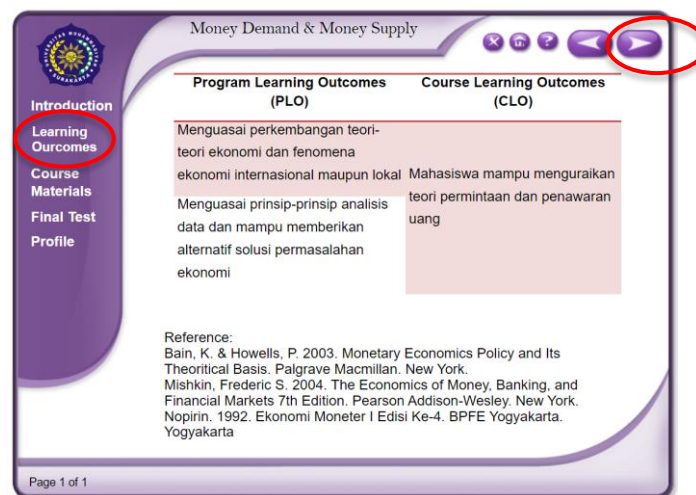


Figure 7.

Learning Outcomes and References of the interactive e-book for the chapter Money Demand and Money Supply

Source: Application Developed by Author (2023)

From Figure 7, if students would like to know the learning outcomes, they can go to menu bar on the left side and “click” Learning Outcomes or just “click” the ‘next’ icon in the corner. The interactive activity in this e-book can be shown by how students can answer the question, and watch the materials video. Figure 8 shows the page of the interactive e-book where students can answer the question after they watch the video on the previous page. After answering the question, students can “click” the submit button to send their answer, and the key answer will appear.

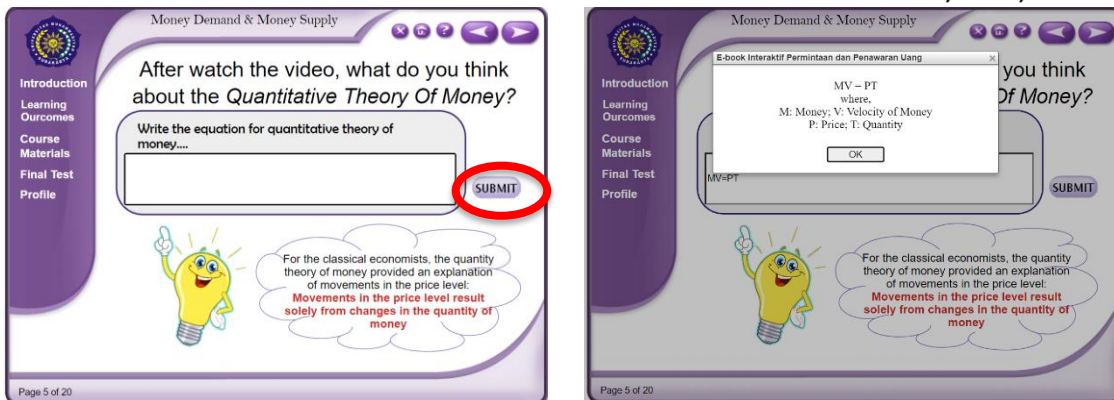


Figure 8.

Interactive activity on the Interactive E-book (Elaborate Stages)

Source: Application Developed by Author (2023)

In this interactive e-book, the lecturer can ask the students to make a group discussion session by synchronizing the interactive e-book with LMS SPADA. After the discussion session, students can upload their answers on SPADA and presenting in front of the classes. The lecturer as the facilitator can evaluate and then extend the materials to broaden student's understanding of the subjects (As we can see in Figure 5).

Implementation Stage

The first step before this interactive e-book is published is the feasibility test. The material experts who are the respondents in this study are 3 economics lecturers who have expertise in the monetary and macroeconomic sectors. The feasibility test results of learning media from material experts can be seen in Table 3. Based on Table 3, we can see that the feasibility of the material has a value of 93,3%, the feasibility of presenting the material has a value of 88%, and aspects of course learning outcomes (CLO) have a value of 100%.

Table 3.

Feasibility Test Results from Material Experts				
Aspect	Σni	ΣN	Score	Conclusion
Material Feasibility	28	30	93,3%	Very Feasible
Presentation	66	75	88%	Very Feasible
Learning Outcomes	15	15	100%	Very Feasible
Total score	109	120	90,8%	Very Feasible

Source: Processed Primary Data (2023)

From Table 3, the feasibility test results from material experts as a whole are 90,8%, which is based on Table 2 product feasibility criteria, it is included in the category of "very feasible", so that the material in the interactive e-book is suitable to use as a learning media in Monetary Economics subject. The results of this feasibility test are in line with the previous study by Huang et al. (2024) who proved

that implementation of interactive e-learning provides teachers with more teaching resources and strategies to improve the teaching quality. Next, we conduct language validation tests from linguists to ensure the feasibility of using the language in this interactive e-book. The linguists who were respondents in this study were 2 lecturers with English expertise. The result of validation test from linguists can be seen at Table 4.

Table 4.
Validation Test Results from Linguists

Aspect	Σni	ΣN	Score	Conclusion
Straight-forward	18	20	90%	Very Feasible
Language	28	30	93%	Very Feasible
Total score	46	50	92%	Very Feasible

Source: Processed Primary Data (2023)

Based on table 4 which contains a recapitulation of the results of validation tests by linguists, shows that the feasibility of languages used in interactive e-books has a value of 94% which is included in the "very feasible" category. It can be concluded this interactive e-book uses language that is easy to accept, easy to understand, and appropriate sentences in explaining the material. The next stage is to test the feasibility from the practitioner's point of view. The respondents are 4 lecturers on the Monetary Economics course and other subjects with related topics. The result of the feasibility test from practitioners can be seen in Table 5.

Table 5.
Validation Test Results from Practitioners (Lecturers)

Aspects	Σni	ΣN	Score	Conclusion
Content	38	40	95%	Very Feasible
Presentation	94	100	94%	Very Feasible
Function & Benefits	37	40	92,5%	Very Feasible
Learning Outcomes	20	20	100%	Very Feasible
Total Score	189	200	94,5%	Very Feasible

Source: Processed Primary Data (2023)

Based on table 5 which contains a recapitulation of the results of validation tests by learning practitioners (lecturers), shows that the feasibility aspect of the content taught has a value of 95%, the feasibility aspect of the material presentation has a value of 94%, aspect of media functions and benefits has a value of 92,5% and the course learning outcomes aspect has a value of 100%. So, overall the results of the validation test by practitioners have a value of 94.5% which is included in the "very feasible" category. Therefore, we can conclude that this interactive e-book for the chapter Money Demand and Money Supply is worthy to use as a learning media in the Monetary Economics course.

From the results in Table 3, Table 4, and Table 5, it has been proven that both in terms of material and language use in interactive e-books are "very feasible" and can be used in learning media. Therefore, the next step in this implementation stage is

to conduct an interactive e-book trial for 3rd-semester students who take monetary economics subjects in the Economics Department, Faculty of Economics and Business, Universitas Muhammadiyah Surakarta for the academic year 2023/2024. The implementation of this learning media is by uploading the interactive e-books on LMS (Spada UMS) in the online forms (.html) and Android application (.apk). Therefore, it can be accessed easily by all students either using laptops/ PCs or using their Android smartphones. At the end of learning, students are given questionnaires to provide responses and evaluations to this e-book interactive learning media from the student's point of view. This is a very important stage because students are the final users of this learning media. So their opinions are needed to be able to assess whether this interactive ebook is indeed worth using and can be useful in the learning process for students.

Evaluation Stage

The evaluation stage is carried out by assessing the results of student assessments after testing the use of interactive e-books as learning media. After that, the assessment results of each stage are compared together to be able to analyze the feasibility of the interactive e-book developed.

Table 6.

Results of Learning Media Trials by Students

Aspect	Σni	ΣN	Score	Conclusion
Content	87	110	79%	Feasible
Design	271	330	82%	Feasible
Visual Communication	139	165	84%	Feasible
Total score	497	605	82%	Feasible

Source: Processed Primary Data (2023)

Based on Table 6, we can see the results of a survey conducted on students who have used this interactive e-book as a learning resource overall the results of trials by students when assessed from the aspect of the quality of overall material content obtained a value of 79%, the total score for aspects of learning media design is 82%, and aspects of visual communication obtained a value of 84%. So overall, an average score of 82% was obtained which was included in the "feasible" category, which means that this interactive e-book is feasible to be used as a learning media for Monetary Economics subject.

From these surveys, we also found that 73% of students agree that interactive e-book design can improve their understanding of the monetary economic subject. They also stated that this interactive e-book was interesting and enhanced their motivation to learn monetary economics courses, where the material was difficult. In addition, they also gave some suggestions such as adding more narration and making other versions in Indonesian.

The recapitulation results of feasibility tests conducted by material experts, linguists, learning practitioners, and trials to students on this interactive e-book can be seen in Table 7.

Table 7.

Validation Decision for Product Development Recapitulation

Validator	$\sum ni$	$\sum N$	Score	Conclusion
Material Experts	109	120	90,8%	Very Feasible
Linguists	46	50	92%	Very Feasible
Practitioners	189	200	94,5%	Very Feasible
Students	497	605	82%	Feasible
Total Score	841	975	86%	Feasible

Source: Processed Primary Data (2023)

Based on Table 7, it is known that the validation value of material experts is 90,8%, the value of linguists is 92%, the value of practitioners is 94,5%, and the value of trial results on students is 82%. Therefore, the overall score is 86% which is included in the "feasible" category based on the Product Eligibility Criteria table. From the overall description above, it can be concluded that interactive e-book learning media has proven feasible and can be used as a learning media in Monetary Economics subject. However, even though learning media has been said to be feasible, various notes and suggestions from experts and students must still be implemented to develop a better learning media in the future.

CONCLUSION

This research resulted in a product in the form of Interactive e-book learning media with the Learning Cycle 7E method and the ADDIE development model using Lectora Inspire software in the Monetary Economics subject. The development of the learning cycle 7E method is carried out through the elicit stage, engage stage, explore stage, explain stage, elaborate stage, evaluate stage, and extend stage. Based on the results of the validation test by 3 validators, which are material experts, linguists, and practitioners, it was stated that this product is very feasible to use as a learning media. After being implemented by students, we got the student's responses that 73% of students agree that interactive e-book design can improve their understanding of the monetary economic subject.

The limitations of this study are that the product requires a stable internet connection, whether accessed through the web or via an Android application. Based on the conclusions, it can be suggested for lecturers to create and apply this interactive learning media in monetary economics courses. Further research can be conducted by testing the implementation of this interactive learning media in order to improve the student learning outcomes in the Monetary Economic course and develop the new interactive learning media for other courses.

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