JPIS JURNAL PENDIDIKAN ILMU SOSIAL

p-ISSN: 1412-3835
e-ISSN: 2541-4569
VOL 35, NO.1, JUN 2025

DEVELOPMENT OF FOCUSKY BASED LEARNING MEDIA TO ENHANCE STUDENTS' CRITICAL THINKING SKILLS

Retna Ngesti Sedyati[1], Jefri Rieski Triyanto[2], Muhammad Asyroful Mujib[3], Tiara[4] , Agustina Tri Wijayanti[5]

[1,2,3,4] Faculty of Teacher Training and Education, Universitas Jember

[5] Faculty of Social Sciences, Law, and Political Science, Universitas Negeri Yogyakarta

email: jefririeski@unej.ac.id

ABSTRACT

The method used in this research is development research or Research and Development (R&D) adapted and modified from Branch's ADDIE Model, which consists of five steps. This study aims to (1) describe the process of developing Focusky learning media for the subject of business entities in the Indonesian economy and (2) evaluate how well the media improves the critical thinking skills of high school students. The uniqueness of this study lies in the integration of Focusky a tool rarely explored in economics education with a structured instructional design to encourage critical thinking. In this study, questionnaires and observations were used as data collection methods. Eleventh-grade IPS students at SMAN Pakusari will be the subjects of the study for the product effectiveness test, which will be conducted using effect size calculations and the Paired Sample T-Test. IBM SPSS 29 is used to assist with data analysis in this research. The results show that the integration of Focusky media significantly supports the development of students' critical thinking. Through engaging visual content and interactive features, this media facilitates deeper understanding and active learning. These findings emphasize the potential of technology-based learning tools to enrich classroom experiences and promote essential 21st-century skills in economic education. From the results of the statistical research, it shows that the Focusky learning media is effective in improving students' critical thinking skills based on the significance values of the pretest and posttest from the small group (0.046 < 0.05) and the large group (0.049 < 0.05). The effect size test results for the small group received a value of 0.79 and for the large group received a value of 0.80. Both values indicate that the developed Focusky media has a significant impact on enhancing students' critical thinking.

Keywords: *Learning media, focusky, critical thinking skills*

Received: *02 Februari 2025*
Accepted: *11 Juni 2025*
Published: *21 Juni 2025*

p-ISSN: 1412-3835
e-ISSN: 2541-4569
VOL 35, NO.1, JUN 2025

INTRODUCTION

A key component of the 21st-century learning process's success is educational media. Using visuals, animations, music, and other learning materials will help students develop their conceptual framework. The outcomes of that visualization will be constructed by the students as new information and experiences (Clark & Mayer, 2023). As a result, educational institutions must constantly create interesting teaching strategies for pupils. Teaching kids to be active, creative, and innovative is a challenge for educators in the present globalized world. Teachers have a crucial role in providing educational resources. The method of delivery is important regardless of how engaging the content to be delivered is. Creativity, critical thinking, communication, and teamwork are some of the abilities that participants need to have in order to raise the standard of education (4C) (Saad et al., 2024). This is corroborated by Carlgren, (2013) assertion that one of the most important talents that every person needs in the twenty-first century is the ability to think critically. Learning to learn, learning to be, learning to do, and learning to be together are the four techniques that are necessary for success in education in the twenty-first century. The issue with economics education that frequently arises in the classroom is students' disinterest in reading and researching the economic events that are being taught. Teachers' limited usage of information technology is the cause of students' disinterest in reading and learning (Offiana et al., 2020). The pupils' capacity for critical thought will undoubtedly be impacted as well (Janse van Rensburg & Rauscher, 2022). We'll go into more detail below about earlier studies that demonstrated the connection between reading and learning interest and learning media and critical thinking abilities. According to Švecová et al., (2014), one of the earliest studies on critical thinking skills, students' critical thinking skills should be applied and refined during the learning process. PISA (Program for International Students Assessment) collected further data demonstrating the critical thinking proficiency of Indonesian students. PISA survey results indicates that Indonesia continues to lag well behind the global average. at terms of science performance, Indonesia comes at third from the bottom (OECD, 2016). Researchers might use this as a reflection to look for answers and other approaches to help students become more adept at critical thinking. This serves as a reflection for researchers to seek and find solutions and alternatives to enhance students' critical thinking skills. Seeing the reality that has occurred, this research aims to develop an engaging learning media to enhance students' critical thinking skills.

Previous studies on the relationship between learning media and critical thinking skills have shown that, in contrast to traditional teaching methods, the use of interactive learning media can enhance students' critical thinking abilities (Najmul et al., 2018; Zulhelmi et al., 2017). Teachers are more likely to use conventional methods, such as the lecture model, while instructing geography (social studies), economics, and history. Students get disinterested in class and lose their ability to think critically when the lecture style is used. As a result, a mixed learning approach that incorporates both technology and lectures is required

(Naredi et al., 2022). Technology-based learning materials, which let students to use technology to study, solve issues, and discover new things, are required by the 2013 and Merdeka curricula. Technology does not take the place of teachers; rather, it allows them to concentrate more on mentoring their pupils (Burbules et al., 2020). Making interesting learning materials, like the one the researcher, Focusky, will create, is one technique to improve students' critical thinking abilities during the learning process. Focusky can handle a wide range of content, including text, audio, video, and photos. According to earlier research, multimedia learning materials can improve learning outcomes and boost study motivation more than learning materials that merely include text and images (Eltahir et al., 2021; Kang & Ritzhaupt, 2021; Pham, 2021). Focusky media is one type of educational resource that can help pupils develop their critical thinking abilities. Similar to the learning tool Prezi, this medium is presentation-based; nevertheless, Focusky has some distinctions and special benefits (Hingan & Qomariyah, 2020; Mistianah & Qomariyah, 2019; Yunitasari et al., 2022).

The researcher is interested in doing development study by connecting the learning variables required to evaluate the efficacy of the generated product, as supported by the factual data above. This study is also well justified by the 21st century's use of information technology and the need for critical thinking abilities. Particularly at the high school level in Jember Regency, the researcher seeks to determine and evaluate the efficacy of the media product created to address pupils' poor critical thinking abilities. Drawing from earlier studies on high school students' critical thinking abilities, such as Kurniyasari's "Analysis of High School Students' Critical Thinking Skills in Sako and Alang-Alang Lebar Districts," the findings of this investigation show that Sako District has a low percentage of 38.99%, while Alang-Alang Lebar District has a moderate percentage of 52.99%. Both test and non-test approaches were used in the data collection process. Ms. Excel was used to analyze the data by figuring out the percentage of mastery levels. According to the report, critical thinking abilities are still regarded as lacking. This problem can be solved quickly and can give students 21st-century living skills (Kurniyasari et al., 2019).

The novelty of this research compared to previous studies conducted by Novitasari (2020) titled "The Effectiveness of the TTW Model Assisted by Focusky Software on High School Students' Economics Learning Outcomes" lies in this study's effort to develop learning media using Focusky software that has been validated by experts and then examining its effectiveness on students' critical thinking skills. Meanwhile, the research conducted by Novitasari only aimed to see the effectiveness of the application of the think, talk, write learning model assisted by Focusky software on economics learning outcomes. Previous research focused on the effectiveness of the model, whereas this research focuses on the development of validated learning media to test its effectiveness in enhancing critical thinking skills. The method used in previous research employed a quasi-experimental design, whereas this research is a development study.

RESEARCH METHOD

The development approach (Research and Development) is used in this study. According to Sanjaya (2012), the instructional design process is a methodical way to solve learning challenges through the preparation of learning activities and resources. The five stages of Branch, (2009) ADDIE model analysis, design, development, implementation, and evaluation were used in the creation of Focusky media. Students in the eleventh grade at SMAN Pakusari, Jember Regency, served as the research subjects.

This study was carried out at SMAN Pakusari in Jember Regency. Students in the eleventh grade at SMAN Pakusari served as the research subjects. A questionnaire given at the Analyze Learner stage and the degree to which the created content matched the desired learning objectives were the basis for choosing this class. Limited trials (small group) were conducted in the 11th grade with 10 students, and extensive trials (large group) were conducted in the 11th grade with 20 students. The total number of samples is 30. According to Arikunto (2010), the subjects of a small group trial can be conducted with 4-14 respondents, while a large group trial can be conducted with 15-50 respondents.

A needs analysis tool, a media expert validation tool, a material expert validation tool, a language expert validation tool, an interview tool, a user testing tool, and a critical thinking skills tool utilizing indicators from Ennis (1996) are among the tools utilized in the creation of the Focusky media. The instruments used in this research were tested for their reliability. Reliability testing in education refers to the consistency or stability of a set of test scores. If the test or assessment procedure provides reliable scores, those scores will be similar on every occasion (Johnson & Christensen, 2014). The reliability test of this research instrument uses the Alpha Cronbach formula. This study used tests and interviews as data collection methods.

Table 1.
Indicators of Critical Thinking Skills

No.	Indicators	Sub Indicators
1.	Elementary clarification	a) Focusing the question b) Analyzing the argument c) Asking and answering questions
2.	Basic support	a) Considering the credibility of the source b) Observing and considering the discussion report
3.	Inference	a) Deduce and consider the results of deduction b) Induce and consider the results of induction c) Create and determine the conclusions from various opinions
4.	Advanced clarification	a) Defining terms and considering a definition b) Identifying assumptions
5.	Strategy and tactic	a) Determining an action b) Interacting with others

Source: Ennis (1996)

Students in the eleventh grade served as the research subjects for this study, which was implemented during the even semester of the 2023–2024 school year. The general procedure for conducting research is as follows: 1) Analyze Stage: After gathering data, researchers examined the students' critical thinking abilities and the media that needed to be developed; 2) Design Stage: During this phase, educators and researchers worked together to produce a preliminary version of the Focusky media. The needs analysis carried out in the earlier stage served as the foundation for this draft; 3) Develop level: Activities at this level included creating media to improve critical thinking abilities and content to help create successful learning programs. In order to guarantee the creation of a suitable and high-quality product, the procedure also included having specialists validate the content, media, and language; 4) Implementation Stage: Following validators' evaluation, the created learning materials proceeded through trial phases in this step. User testing with educators and students was part of the implementation; 5) Assess Stage: This entailed examining user reactions to the educational materials and assessing their effectiveness. Both qualitative and quantitative data analysis methods were used to examine these reactions and effects. Ten students participated in a short trial at the start of the evaluation phase, and twenty students participated in a larger user trial.

RESULTS AND DISCUSSION

RESULTS

This section explains the results of the needs analysis, expert validation, user testing, and the effectiveness of the Focusky learning media in enhancing students' critical thinking skills. The development of the Focusky media adopts the ADDIE model by Branch. Based on the needs analysis results obtained from the responses of 30 participants, it was found that the use of learning media has not yet been fully optimized. This is evident from the data presented in table 2 below.

Table 2.
Results of The Needs Analysis

No.	Statement Item	Min	Max	Mean	Std. Deviation
1.	The learning media currently used is quite interesting	2	4	3.50	0.85
2.	Current learning media facilitate critical thinking skills	1	4	2.80	0.92
3.	The development of learning media based on modern technology is needed	3	4	4.40	0.75
4.	Interactive visual-based learning media can enhance students' understanding	3	4	4.30	0.72

No.	Statement Item	Min	Max	Mean	Std. Deviation
5.	Critical thinking skills are very important for students to master	3	4	4.70	0.48
6.	The developed learning media must be easy to access and use	3	4	4.20	0.66

Source: Processed from researcher data

Based on Table 2, it can be concluded that the second question item received the lowest average score compared to the other question items. The average score of 2.80 indicates that the learning media currently used by teachers does not yet facilitate students' critical thinking skills. Additionally, the first question item also ranks second lowest after the second statement item, with an average score of 3.50. Based on Table 2, researchers can use this as a basis to develop learning media that can enhance students' critical thinking skills. The developed learning must also be engaging and facilitate students in the teaching and learning process.

The design phase is the following stage. At this point, the suggested concept is further developed into an organized learning media formulation. Following the completion of the learning media design, the developer can determine the resources and equipment required to produce and develop the media, such as a laptop, an internet connection, and books for further reference. The researcher obtained an overview of the Focusky media to be developed in the classroom, beginning with the Core Competencies, learning objectives, and learning materials, based on the needs analysis and educator interviews. The contextual teaching and learning (CTL) method's syntax will be used to implement each of these components. Business Entities in the Indonesian Economy is the main topic of this Focusky media's material.

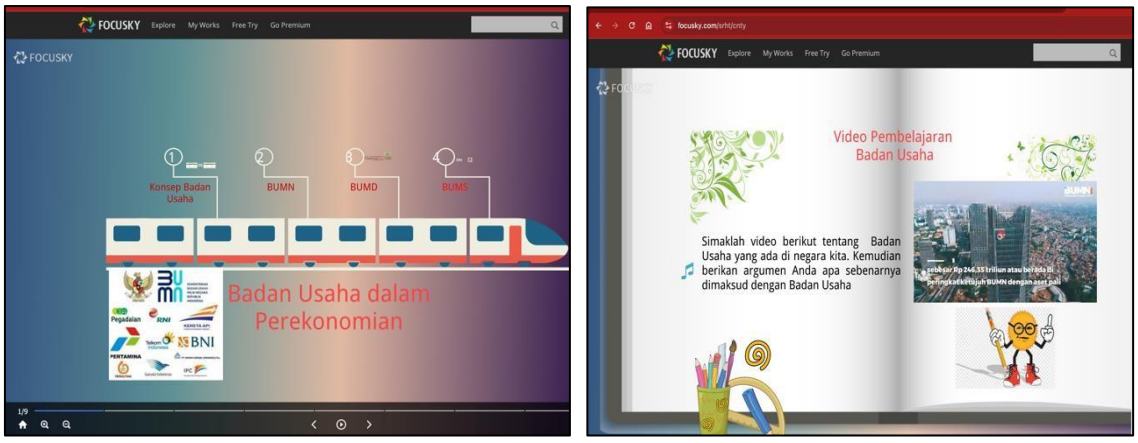

Figure 1.
Focusky Media Design

The third stage is development. The development stage in the ADDIE design focuses on the process of realizing the initial design into a learning product that is ready to be tested and used. In the context of this research, Focusky-based media is developed to enhance students' critical thinking skills. At this stage, the initial design (blueprint) created in the previous stage (design) is realized into a tangible product using Focusky software. In general, the development stage consists of three activities as follows. First, media development. The activities carried out are (1) the creation of interactive slides with rich visual elements such as animations, graphics, and dynamic transitions; (2) the integration of learning materials designed to train critical thinking, such as case-based videos or problem simulations; (3) the use of multimedia features (audio, video, and visual effects) to enhance student engagement. Second, product validation activities involving learning media experts to evaluate appearance, navigation, and visual appeal. Validation by subject matter experts, to ensure the content aligns with the curriculum and learning objectives. Finally, language validation to avoid ambiguities that could disrupt the learning process and ensure the language used is relevant to the designed learning context (Gulo et al., 2024; Rustandi & Rismayanti, 2021; Zahwa & Syafi'i, 2022). Third, revising the product to identify and analyze deficiencies in the developed media. The purpose of revising the product based on expert validation is very important as a consideration and evaluation before the implementation of the developed media (Muna & Wardhana, 2022). Here are the validation results from media experts, subject matter experts, and language experts.

Table 3.
Results of Media Expert Validation Analysis

Indicator	$\bar{x}$	N	Σn	Min	Max	σ
Media Expert Validation Data	3,50	10	35	3	4	0,535

Source: Processed from SPSS data

Table 4.
Results of Expert Material Validation Analysis

Indicator	$\bar{x}$	N	Σn	Min	Max	σ
Expert Material Validation Data	3,70	10	37	3	4	0,483

Source: Processed from SPSS data

Table 5.
Results of Linguistic Expert Validation Analysis

Indicator	$\bar{x}$	N	Σn	Min	Max	σ
Language Expert Validation Data	3,50	10	35	3	4	0,527

Source: Processed from SPSS data

Table 6.
Product Eligibility Categories

Achievement Level	Qualification Remarks	Remarks
1,0 ≤ SV > 1,5	Poor Not usable	Poor Not usable
1,6 ≤ SV > 2,5	Fair	Usable with major revisions
2,6 ≤ SV > 3,5	Good	Usable with minor revisions
3,6 ≤ SV > 4	Very Good	Usable without revisions

Source: Gronlund (2001)

Based on the evaluation by expert validators, the media expert scored 3.50, the material expert scored 3.70, and the language expert scored 3.50. According to the product feasibility level table, the media and language aspects of the developed product fall into the "good" category with minor revisions needed. Meanwhile, the material expert's evaluation, with a score of 3.70, is categorized as "excellent" and can be used without revisions. Validation by media, material, and language experts is a critical step in the development research process. This validation guarantees that the educational materials created are not only aesthetically pleasing but also useful in improving critical thinking abilities and pertinent to students' learning requirements. It is anticipated that Focusky-based learning materials would significantly influence 21st-century education through an integrated method (Sugiyono, 2016).

The implementation phase, which comes next, follows the ADDIE model. The researcher evaluated the verified media on teachers and pupils throughout this phase. Ten grade XI students and an economics teacher participated in the educator usability assessment. A questionnaire of 15 items covering three assessment indicators design, look, and content was used for this testing. Below are the findings of the teacher's assessment of the created Focusky media. The following conclusions are drawn from the data analysis of the user testing tool that was given to the instructor at SMAN Pakusari Jember.

Table 7.
Results of the Educator User Test Statistics

Indicator	$\bar{x}$	N	Σn	Min	Max	σ
Educator User Test Data	3.0	15	45	2	4	0.524

Source: Processed from SPSS data

It may be inferred from the evaluation findings above that the Focusky learning media product's educator user testing received a score of 3. The created product is in the "good" category and can be employed with very minor changes when compared to the product feasibility table.

Table 8.
Results of the Statistical Analysis of Educator Participant User Test

	$\bar{X}$	N	∑n	Min	Max	σ
Students I	3.2	10	32	3	4	0.473
Students II	3.5	10	35	3	4	0.616
Students III	3.4	10	34	3	4	0.525
Students IV	3	10	30	3	3	0.000
Students V	3.2	10	32	3	4	0.133
Students VI	3.3	10	33	3	4	0.425
Students VII	3.6	10	36	3	3	0.626
Students VIII	3.0	10	30	3	4	0.123
Students IX	3.0	10	30	3	4	0.225
Students X	3.6	10	36	3	3	0.526

Source: Processed from SPSS data

$$\bar{X} = \frac{\sum n}{N}$$

$$\bar{X} = \frac{328}{100}$$

$$\bar{X} = 3{,}28$$

The individual student user test for the Focusky-based learning media product received a score of 3.28, according to the results of the student evaluation mentioned above. The created Focusky-based learning materials are in the "good" category and can be utilized with a few minor adjustments, per the product feasibility table. According to the ADDIE approach, evaluation should be done last. In this last phase, the Focusky media are assessed using both thorough and limited testing. The purpose of these assessments is to ascertain how well Focusky media contributes to the development of students' critical thinking abilities. The researcher conducted a normalcy test as a precondition for these tests. Ten students from Grade XI participated in the limited trial, and twenty students from the same grade participated in the extensive trial. Below are the findings from both the extensive and restricted trials.

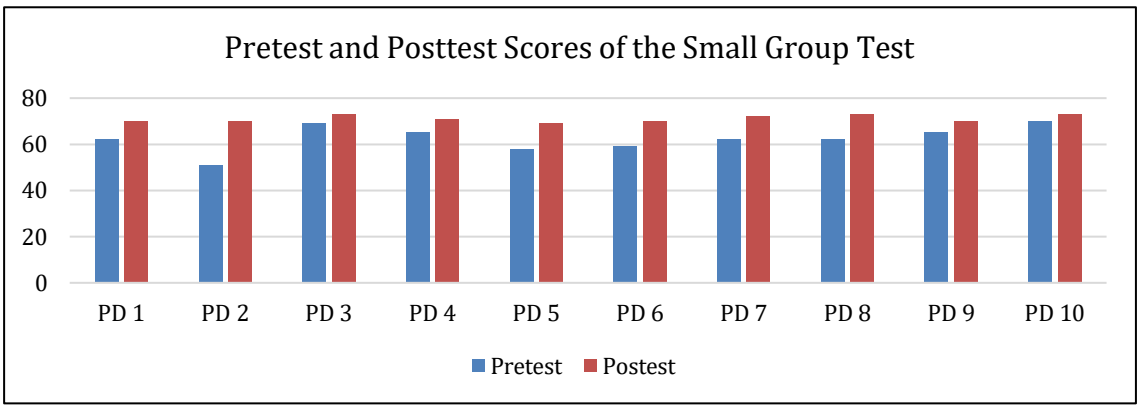

Figure 2.
Pretest and Posttest Scores of the Small Group

IBM SPSS V29 was used to do a quantitative calculation in order to evaluate the impact of the created learning materials on students' critical thinking abilities. The findings of the Paired Samples T-Test analysis are shown below.

Table 9.
Results of Paired Samples Statistics Test in Small Group Trial

	Paired Samples T Test Pretest dan Posttest								
	x̄	**N**	**σ**	**σx**	**r**	**t**	**Df**	**α**	**p.**
Pretest	62.30	10	5.539	0.641	0.046	-5.909	9	0.05	0.001
Posttest	71.10	10	1.524						

Source: Processed from SPSS data

The data in the above table indicates that the average score on the pretest was 63.00 (standard deviation = 5.539) and the average score on the posttest was 71.10 (standard deviation = 1.524). For the small group subjects, the average posttest score is higher than the average pretest score. Thus, it can be said that after using the produced Focusky medium, the participants' critical thinking abilities improved in the small group test. At a 5% confidence level (0.046 < 0.05), the small group's pretest and posttest scores showed a significant correlation with a correlation of 0.641, as indicated by the significance value in the above table of 0.046, which is less than 0.05. The Sig. (2-tailed) value of 0.001 with a probability value of 0.001 < 0.05 further supports the table's finding that the pretest and posttest in the small group trial had a strong and positive connection. Therefore, it can be said that there is a substantial difference between the small group's pretest and posttest scores, indicating that using the created learning materials improved the participants' critical thinking abilities.

The relative effectiveness formula can then be used to calculate the efficacy of economic learning based on the findings of the data analysis above. The following outcome is obtained from the relative effectiveness calculation.

$$\textit{Eta Squared} = \frac{t^2}{t^2+(N-1)}$$
$$= \frac{-5.909^2}{-5.909^2+(10-1)}$$
$$= \frac{34.916}{34.916+9}$$
$$= \frac{34.919}{43.916}$$
$$= 0.79$$

Table 10.
Criteria for Relative Effectiveness Testing

Scores	Qualification
0.01	Small Efect
0.06	Moderate Effect
0.14	Large Effect

Source: Cohen (1988)

The generated learning media earned a value of 0.79 based on the researcher's calculation of the effect size test. The created learning materials are classified as having a "Large Effect" when compared to the effect size criteria table. This indicates that learning effectiveness was successfully raised by the generated product, and that students' critical thinking abilities, especially in economics, are strongly impacted by the effectiveness level of the learning media.

A large-scale study involving 20 kids from the 11th grade class is the next stage after a restricted trial. A precondition test, the normality test for the pretest and posttest utilizing the Kolmogorov-Smirnov test, was carried out prior to the extensive trial. The large group test was undertaken because the normality test findings showed that the data from the pretest and posttest were regularly distributed. Pretest and posttest questions were used in the large group test to gauge the students' critical thinking proficiency. The pretest and posttest results from the large group trial are shown below.

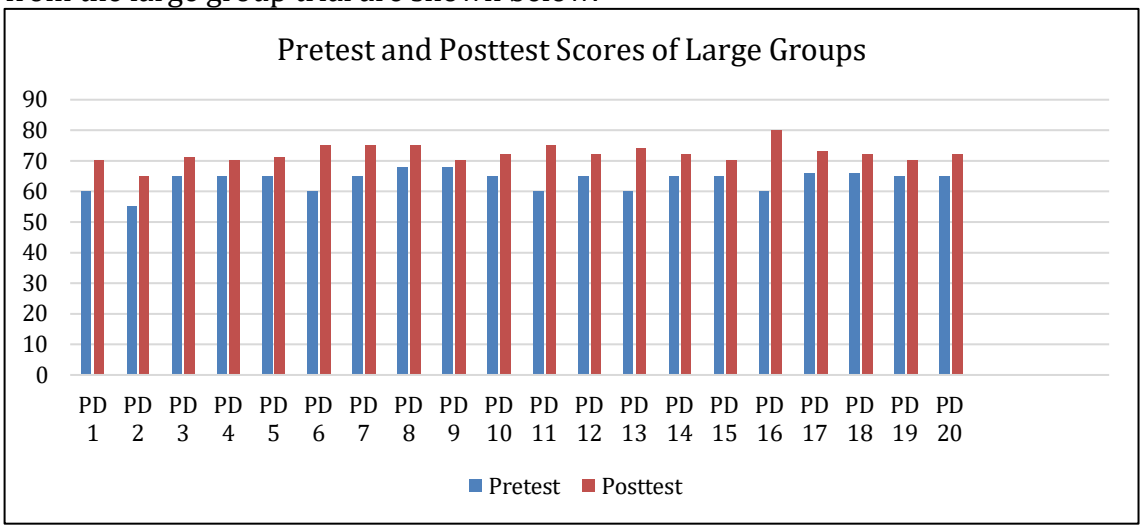

Figure 3.
Pretest and Posttest Scores of the Large Group

Table 11.
Results of Paired Samples Statistics Test in Large Group Trial

	Paired Samples T Test Pretest dan Posttest								
	x̄	**N**	**σ**	**σx**	**r**	**t**	**Df**	**α**	**p.**
Pretest	62.65	20	3.313	0.837	0.049	-8.725	19	0.05	0.001
Posttest	72.20	20	3.037						

Source: Processed from SPSS data

The average pretest score is 62.65 (standard deviation = 3.313), and the average posttest score is 72.20 (standard deviation = 3.037), according to Table 11. The large group subjects' average posttest score is higher than their pretest score. Thus, it can be said that after using the produced Focusky medium, the students' critical thinking abilities improved on the big group test. At a 5% confidence level (0.049 < 0.05),

Table 11's significance value of 0.049, which is less than 0.05, shows a significant correlation (r = 0.837) between the big group's pretest and posttest scores. The big group trial's pretest and posttest had a strong and positive link, as indicated by Table 11's Sig. (2-tailed) value of 0.001 and probability value of 0.001 < 0.05. As a result, it can be said that the big group's pretest and posttest scores differed significantly, indicating that the students' critical thinking abilities had improved as a result of using the created learning materials.

Eta Squared $= \frac{t^2}{t^2+(N-1)}$

$= \frac{8.7252^2}{8.7252^2+(20-1)}$

$= \frac{76.125}{76.125+19}$

$= \frac{76.125}{95.125}$

$= 0.80$

A value of 0.80 was determined by the effect size test calculation. The created learning materials are classified as having a "Large Effect" when compared to the effect size criteria table. This indicates that the learning process was effectively made more effective by the manufactured product, and that the degree of effectiveness of the learning medium produced has a significant influence on the development of students' critical thinking abilities.

DISCUSSION

The results of this study show that Focusky-based learning media significantly contributes to improving students' critical thinking skills. Based on the results of media, content, and language validation tests, this learning media was rated positively and can be used with minor revisions, with an average score of 3.5 from media, language, and content experts. These findings are consistent with previous studies that state that interactive technology-based media can enhance student engagement in the learning process while fostering the development of critical thinking skills (Amri et al., 2020; Clark & Mayer, 2023; Gastama et al., 2023). The use of Focusky as a learning media leverages interactive visual elements and a systematic structure for delivering content. This aligns with the multimedia cognitive theory, which suggests that presenting information through text, images, and animations simultaneously can enhance the information processing in working memory (Mayer, 2009).

Further analysis of student performance and interview data revealed that the most significant improvement occurred in three domains of critical thinking based on Ennis (1996) framework: (1) Advanced clarification. Students were better able to identify and clearly define economic problems, such as distinguishing between types of business entities and their functions in the national economy; (2) Basic support. Learners, demonstrated stronger reasoning in justifying the selection of

business forms (e.g., CV vs. PT) in real-world scenarios, reflecting improved decision-making based on evidence and principles.

These cognitive gains indicate that Focusky not only serves as an effective content delivery tool but also functions as a platform for cognitive stimulation and intellectual autonomy. By encouraging learners to interact actively with material and simulate economic decision-making, the media fosters deeper reflection and thoughtful engagement central aims in critical thinking instruction.

The findings underscore the value of integrating multimedia-based approaches within economics education to cultivate essential 21st-century skills. Future research might further explore how such tools can be optimized to strengthen other critical thinking dimensions, such as inference and meta-cognitive regulation. These outcomes imply that Focusky is not only effective in delivering content but also in creating an active learning environment where students are encouraged to process, question, and reflect on information essential processes in the development of critical thinking. The interactive nature of the media may also reduce students' cognitive fatigue, making the learning experience more engaging and conducive to sustained attention.

The testing of Focusky media on students using paired sample t-test and effect size tests shows that there is an improvement in critical thinking skills. This can be seen from the average difference in pretest and posttest scores in both the small and large groups. The average pretest and posttest scores of the students show a significant improvement. Based on the results of the paired sample t-test, the significance values for both the large and small group tests are less than 0.05, meaning there was an improvement in the students' critical thinking skills after using the developed Focusky learning media. This is consistent with findings from (Gastama et al., 2023; Lestari & Sunarso, 2024), which state that learning media equipped with images, illustrations, and engaging backgrounds make it easier for students to absorb the material being taught. The effect size test results from this study also show that the Focusky learning media meets the "large effect" criteria in both the small and large group tests. This criterion indicates that the developed Focusky learning media has a significant impact on improving students' critical thinking skills.

Furthermore, Focusky based media has the advantage of providing a personalized and flexible learning experience, allowing students to learn independently outside the classroom. This contributes to an increase in learning motivation, as stated by (Mokmin et al., 2024), who mention that technology based media can create a more engaging and relevant learning environment for students.

Overall, Focusky based learning media not only supports the achievement of learning objectives but also contributes to the development of students' critical thinking skills in line with 21st-century competencies. These findings indicate that innovation in technology-based learning media is a strategic step in addressing the challenges of education in the digital era.

CONCLUSION

The Focusky-based learning media, based on field research findings, has proven to be effective in enhancing students' critical thinking skills. This is supported by the validation results from experts in content, media, and language, which show a positive evaluation. User trials with both educators and students also indicate that the developed Focusky learning media is categorized as good and can be used effectively. The Focusky learning media, based on trials with both small and large groups, has shown that it can improve students' critical thinking skills. This improvement is evident from the higher posttest scores compared to the pretest scores in both the small and large group trials. The Effect Size test results from both the large and small groups indicate that Focusky-based learning media has a large effect in enhancing students' critical thinking skills.

This research opens up opportunities for further studies that develop other technology-based learning media, whether using similar software like Focusky or AI- or virtual reality-based media. The focus of this development can be directed to support learning in various other subjects. This study contributes to the development of more specific indicators for measuring students' critical thinking skills. Further research can use or expand upon the indicators that have been developed for more in-depth evaluation.

However, this study also identifies several limitations, such as the need for teacher training in using Focusky effectively. This factor is crucial to ensure that the full potential of the media is utilized. Additionally, challenges related to technological infrastructure in some areas require more attention to ensure equitable access.

REFERENCES

Amri, M. F., Saragih, A. H., & Yulia, E. (2020). The Development of Interactive Learning Media Based on Problem Based Learning (PBL) Using Macromedia Flash 8. *Proceedings of the 5th Annual International Seminar on Transformative Education and Educational Leadership (AISTEEL 2020)*. https://doi.org/10.2991/assehr.k.201124.039.

Arikunto, S. (2010). *Prosedur Penelitian: Pendekatan Suatu Praktek*. Jakarta: Rineka Cipta.

Branch, R. M. (2009). *Instructional Design: The ADDIE Approach*. Springer.

Burbules, N. C., Fan, G., & Repp, P. (2020). Five Trends of Education and Technology in A Sustainable Future. *Geography and Sustainability*, *1*(2), 93–97. https://doi.org/10.1016/j.geosus.2020.05.001.

Carlgren, T. (2013). Communication, Critical Thinking, Problem Solving: A Suggested Course for All High School Students in the 21st Century. *Interchange*, *44*(1–2), 63–81. https://doi.org/10.1007/s10780-013-9197-8 .

Clark, R. C., & Mayer, R. E. (2023). *E-learning and The Science of Instruction: Proven Guidelines for Consumers and Designers of Multimedia Learning*. Wiley.

Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences (2nd ed.)*. Routledge.

Eltahir, Mohd. E., Alsalhi, N. R., Al-Qatawneh, S., AlQudah, H. A., & Jaradat, M. (2021). The Impact of Game-Based Learning (GBL) on Students' Motivation, Engagement and Academic Performance on an Arabic Language Grammar Course in Higher Education. *Education and Information Technologies*, *26*(3), 3251–3278. https://doi.org/10.1007/s10639-020-10396-w.

Ennis, R. H. (1996). *Critical Thinking*. New York: Freeman.

Gastama, A. N. F., Rosyida, F., Handoyo, B., & Soelistijo, D. (2023). The Effect of Group Investigation Model Assisted By Interactive Media Lectora Inspire on High School Students Critical Thinking Skills. *Jurnal Inovasi Teknologi Pendidikan*, *10*(3), 233–244. https://doi.org/10.21831/jitp.v10i3.59490.

Gronlund. (2001). *Constructing Achievement Test* (5th ed.). New York: Prentice Hall inc.

Gulo, D. D. S., Laoli, B., Laoli, E. S., & Lase, A. (2024). Pengembangan Media Pembelajaran Video Interaktif Untuk Meningkatkan Hasil Belajar Siswa. *Jurnal Inovasi Pendidikan Dan Teknologi Informasi (JIPTI)*, *5*(2), 314–327. https://doi.org/10.52060/jipti.v5i2.2375.

Hingan, F. B., & Qomariyah, I. N. (2020). Pengembangan Media Pembelajaran Focusky Berbasis Learning Cycle 5E pada Materi Sistem Sirkulasi Manusia Siswa Kelas XI SMA. *Prosiding Seminar Nasional IKIP Budi Utomo*, *1*(01), 383–391. https://doi.org/10.33503/prosiding.v1i01.1076.

Janse van Rensburg, J., & Rauscher, W. (2022). Strategies for Fostering Critical Thinking Dispositions in The Technology Classroom. *International Journal of Technology and Design Education*, *32*(4), 2151–2171. https://doi.org/10.1007/s10798-021-09690-6.

Johnson, B., & Christensen, L. (2014). *Educational Research: Quantitative, Qualitative, and Mixed Approaches. 4th edn*. California: SAGE Publications, Inc.

Kang, Y., & Ritzhaupt, A. (2021). A Comparative Study of Game-Based Online Learning in Music Appreciation: An Analysis of Student Motivation and Achievement. *Journal of Educational Multimedia and Hypermedia*, *30*(1), 59–80.

Kurniyasari, H., Hidayat, S., & Harfian, B. A. A. (2019). Analisis Keterampilan Berikir Kritis Siswa SMA Di Kecamatan Sako dan Alang-Alang Lebar. *Bioma: Jurnal Biologi Dan Pembelajaran Biologi*, *4*(1), 1. https://doi.org/10.32528/bioma.v4i1.2646.

Lestari, Y., & Sunarso, A. (2024). Development of Interactive Media Based on GIPAS Application Assisted by Self-Directed Learning Model to Improve Critical Thinking Skills. *Jurnal Penelitian Pendidikan IPA*, *10*(8), 4461–4469. https://doi.org/10.29303/jppipa.v10i8.7462.

Mayer, R. E. (2009). *Multimedia Learning*. Cambridge: Cambridge University Press.

Mistianah, M., & Qomariyah, I. N. (2019). Pengembangan Modul Fokusky Parasitologi Pada Program Studi Pendidikan Biologi IKP Budi Utomo Malang. *Jurnal Pendidikan Biologi*, *11*(1), 19. https://doi.org/10.17977/um052v11i1p19-23.

Mokmin, N. A. M., Hanjun, S., Jing, C., & Qi, S. (2024). Impact Of An AR-Based Learning Approach on The Learning Achievement, Motivation, and Cognitive Load of Students on A Design Course. *Journal of Computers in Education*, *11*(2), 557–574. https://doi.org/10.1007/s40692-023-00270-2.

Muna, K. N., & Wardhana, S. (2022). Pengembangan Media Pembelajaran Video Animasi dengan Model ADDIE pada Pembelajaran Bahasa Indonesia Materi Perkenalan Diri dan Keluarga untuk Kelas 1 SD. *EduStream: Jurnal Pendidikan Dasar*, *5*(2), 175–183. https://doi.org/10.26740/eds.v5n2.p175-183.

Najmul, I., Cahya, E., & Nurjanah, N. (2018). Pembelajaran dengan Pendekatan Kontekstual Berbantuan Software Focusky Untuk Meningkatkan Kemampuan Berpikir Kritis dan Disposisi Matematis. *Jurnal Penelitian Pendidikan*, *17*(3), 213–219. https://doi.org/10.17509/jpp.v17i3.9615 .

Naredi, H., Ruslan, A., & Sanijan, L. A. (2022). Model Pembelajaran Blended Learning: Sebagai Strategi Dalam Meningkatkan Daya Tarik Peserta Didik Pada Mata Pelajaran Sejarah. *BEMAS: Jurnal Bermasyarakat*, *3*(1), 27–33. https://doi.org/10.37373/bemas.v3i1.206.

Novitasari, D. (2020). Efektivitas Model Ttw Berbantuan Software Focusky Terhadap Hasil Belajar Ekonomi Siswa SMA Mujahidin Pontianak. *Jurnal Pendidikan Dan Pembelajaran Khatulistiwa, 9*(1), 1–10.

OECD. (2016). *PISA 2015*. https://www.oecd.org/en/publications/pisa-2015-results-volume-i_9789264266490-en.html.

Offiana, I., Agung Gede, D. A., & Nafi'ah, U. (2020). Pengembangan Media Pembelajaran Komik Digital pada Materi Pokok Keruntuhan VOC untuk Peserta Didik Kelas XI MIPA 4 SMAN 1 Turen Kabupaten Malang. *Jurnal Pendidikan Sejarah Indonesia*, *6*(1), 19–29. https://doi.org/10.17977/um0330v6i1p19-29.

Pham, D. T. T. (2021). The Effects of Audiovisual Media on Students' Listening Skills. *International Journal of TESOL & Education*, *1*(1), 13–21.

Rustandi, A., & Rismayanti. (2021). Penerapan Model ADDIE dalam Pengembangan Media Pembelajaran di SMPN 22 Kota Samarinda. *JURNAL FASILKOM*, *11*(2), 57–60. https://doi.org/10.37859/jf.v11i2.2546.

Saad, A., Elbashir, A., Abdou, R., Alkhair, S., Ali, R., Parangusan, H., Ahmad, Z., & Al-Thani, N. J. (2024). Exploring of the Gender Variations in 4Cs Skills among Primary Students. *Thinking Skills and Creativity*, *52*, 101510. https://doi.org/10.1016/j.tsc.2024.101510.

Sanjaya, W. (2012). *Strategi Pembelajaran Berorientasi Standar Proses Pendidikan*. Jakarta: Kencana.

Sugiyono. (2016). *Metode Penelitian Kuantitatif, Kualitatif dan R&D*. Bandung: PT Alfabeta.

Švecová, V., Rumanova, L., & Pavlovičová, G. (2014). Support of Pupil's Creative Thinking in Mathematical Education. *Procedia-Social and Behavioral Sciences*, *116*, 1715–1719.

Yunitasari, I., Aini, M., & Nurul, H. (2022). Keefektifan Media Pembelajaran IPA "Radiasi" Berbantuan Software Focusky Untuk Memfasilitasi Hasil Belajar Peserta Didik. *Jurnal Kiprah Pendidikan*, *1*(4), 261–267. https://doi.org/10.33578/kpd.v1i4.119.

Zahwa, F. A., & Syafi'i, I. (2022). Pemilihan Pengembangan Media Pembelajaran Berbasis Teknologi Informasi. *Equilibrium: Jurnal Penelitian Pendidikan Dan Ekonomi*, *19*(01), 61–78. https://doi.org/10.25134/equi.v19i01.3963.

p-ISSN: 1412-3835
e-ISSN: 2541-4569
VOL 35, NO.1, JUN 2025

Zulhelmi, Z., Adlim, A., & Mahidin, M. (2017). Pengaruh Media Pembelajaran Interaktif Terhadap Peningkatkan Keterampilan Berpikir Kritis Siswa. *Jurnal Pendidikan Sains Indonesia (Indonesian Journal of Science Education)*, *5*(1), 72–80.