



Development of E-Comic–Based Instructional Media to Support Economics Learning at SMA Muhammadiyah Pangsid

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Abstrak

Penelitian ini bertujuan untuk mengembangkan media pembelajaran berbasis e-comic serta menguji kelayakannya sebagai media pendukung pembelajaran Ekonomi di SMA Muhammadiyah Pangsid. Latar belakang penelitian ini didasarkan pada keterbatasan media pembelajaran yang masih didominasi metode ceramah dan penggunaan buku teks, sehingga menyebabkan rendahnya minat dan keterlibatan siswa dalam proses pembelajaran. Media e-comic dipilih karena memiliki keunggulan dalam mengintegrasikan unsur visual dan naratif yang mampu meningkatkan daya tarik serta pemahaman konsep ekonomi secara kontekstual.

Penelitian ini menggunakan metode penelitian dan pengembangan (Research and Development) dengan mengadaptasi model Borg dan Gall yang disederhanakan menjadi tujuh tahap, yaitu pengumpulan data, perencanaan, pengembangan produk awal, uji ahli, revisi produk, uji coba terbatas, dan penyempurnaan produk akhir. Subjek penelitian terdiri atas siswa kelas X SMA Muhammadiyah Pangsid. Instrumen pengumpulan data meliputi observasi, wawancara, dan angket penilaian yang diberikan kepada ahli media, ahli materi, serta siswa. Data yang diperoleh dianalisis menggunakan teknik analisis deskriptif kuantitatif dan kualitatif.

Hasil penelitian menunjukkan bahwa media pembelajaran berbasis e-comic yang dikembangkan memenuhi kriteria sangat layak untuk digunakan dalam pembelajaran Ekonomi. Penilaian dari ahli media dan ahli materi menunjukkan tingkat kelayakan yang sangat tinggi, sementara hasil uji coba kepada siswa menunjukkan respon positif terhadap tampilan, kemudahan penggunaan, dan kejelasan materi yang disajikan. Media e-comic ini dinilai mampu meningkatkan minat belajar serta membantu siswa memahami materi Ekonomi secara lebih efektif.

Berdasarkan hasil penelitian, dapat disimpulkan bahwa media pembelajaran berbasis e-comic layak digunakan sebagai alternatif media pembelajaran Ekonomi di SMA Muhammadiyah Pangsid dan berpotensi mendukung terciptanya pembelajaran yang lebih interaktif, menarik, dan bermakna.

Kata kunci: media pembelajaran, e-comic, pembelajaran ekonomi, penelitian dan pengembangan

Abstract

This study aims to develop e-comic–based instructional media and to examine its feasibility as a supporting medium for Economics learning at SMA Muhammadiyah Pangsid. The background of this research is based on the limitations of existing instructional media, which are still predominantly characterized by lecture-based methods and the use of textbooks, resulting in low student interest and engagement in the learning process. E-comic media was selected due to its advantages in integrating visual and narrative elements that can enhance students' learning motivation and contextual understanding of economic concepts.

This research employed a Research and Development (R&D) method by adapting the Borg and Gall model, which was simplified into seven stages: data collection, planning, initial product development,

expert validation, product revision, limited field testing, and final product refinement. The research subjects consisted of tenth-grade students of SMA Muhammadiyah Pangsid. Data were collected through observation, interviews, and evaluation questionnaires administered to media experts, subject-matter experts, and students. The collected data were analyzed using quantitative and qualitative descriptive analysis techniques.

The results indicate that the developed e-comic-based instructional media meets the criteria of being highly feasible for use in Economics learning. Evaluations from media experts and material experts showed very high levels of feasibility, while the results of student trials revealed positive responses regarding visual appearance, ease of use, and clarity of the presented material. The e-comic media was found to increase students' learning interest and to assist them in understanding Economics material more effectively.

Based on these findings, it can be concluded that e-comic-based instructional media is suitable for use as an alternative learning medium for Economics at SMA Muhammadiyah Pangsid and has strong potential to support more interactive, engaging, and meaningful learning experiences.

Keywords: instructional media, e-comic, economics learning, research and development

Introduction

The quality of education is closely related to the effectiveness of the learning process, which is influenced by teaching methods, learning resources, and instructional media used by teachers. In Economics education at the senior high school level, learning is expected not only to transfer knowledge but also to develop students' understanding of economic concepts and their ability to apply them in real-life contexts. However, in practice, Economics learning in many schools is still dominated by teacher-centered approaches, particularly lectures and textbook-based instruction. This condition often leads to passive learning environments, low student engagement, and limited motivation to explore learning materials more deeply.

The rapid development of information and communication technology has created new opportunities for improving the learning process through the integration of digital instructional media. Technology-based learning media can present information in more attractive, interactive, and meaningful ways compared to conventional media. Visual and multimedia-based content has been shown to support students' cognitive processes by helping them visualize abstract concepts, maintain attention, and improve comprehension. Therefore, the use of

innovative instructional media is an important strategy to enhance the quality of Economics learning at the senior high school level.

One of the challenges in teaching Economics is that many of its concepts are abstract and closely related to social and economic phenomena that students do not always experience directly. Topics such as economic systems, payment systems, and economic institutions often require contextual explanations to make them easier for students to understand. When these materials are delivered only through verbal explanations or textbooks, students may find them difficult, monotonous, and less relevant to their daily lives. As a result, students' interest in learning Economics tends to be low, which can negatively affect learning outcomes.

To address these challenges, teachers need instructional media that can present Economics material in a more engaging and contextual manner. One alternative instructional medium that has the potential to improve student engagement is the e-comic. E-comic is a digital comic that combines images, text, and narrative elements in a structured storyline. The integration of visual illustrations and dialogue allows learning material to be presented in a simple, enjoyable, and easy-

to-understand format. Through storytelling, economic concepts can be connected to everyday situations, making learning more meaningful for students.

E-comic-based instructional media is particularly suitable for today's students, who are part of a digital generation and are familiar with visual content delivered through electronic devices. Compared to traditional printed textbooks, e-comics offer several advantages, such as being more attractive, interactive, and flexible in terms of use. They can be displayed using computers, laptops, or projectors in the classroom and can also be accessed independently by students outside of class time. This flexibility supports both teacher-guided instruction and independent learning.

Previous studies have indicated that comic-based and digital media can increase students' motivation, interest, and understanding of learning materials. The use of comics in education has been found to support visual learning, enhance memory retention, and create a more enjoyable learning atmosphere. In the context of Economics education, e-comics can serve as an effective medium to explain economic concepts through characters, dialogues, and problem-based storylines that reflect real economic activities. This approach aligns with constructivist learning theory, which emphasizes that students learn more effectively when they actively construct knowledge based on meaningful experiences.

At SMA Muhammadiyah Pangsidi, Economics learning is still largely dependent on conventional instructional methods, with limited use of innovative digital media. Based on preliminary observations and interviews with teachers, it was found that students often show low enthusiasm during Economics lessons, and their participation in classroom activities is

relatively limited. This condition indicates the need for alternative instructional media that can support teachers in delivering material more effectively and engaging students in the learning process.

Considering these conditions, the development of e-comic-based instructional media is seen as a relevant and strategic solution to support Economics learning at SMA Muhammadiyah Pangsidi. Through systematic development and validation, the e-comic media is expected to meet academic standards, align with the curriculum, and suit students' characteristics. Moreover, the feasibility of the developed media needs to be tested to ensure that it can be effectively used in classroom learning.

Therefore, this study focuses on the development of e-comic-based instructional media for Economics learning and the evaluation of its feasibility as a learning support tool at SMA Muhammadiyah Pangsidi. By developing and implementing this media, it is expected that Economics learning will become more interactive, engaging, and meaningful, ultimately contributing to improved student motivation and understanding of economic concepts.

Method

This study employed a Research and Development (R&D) approach aimed at producing an instructional product in the form of e-comic-based learning media and examining its feasibility for use in Economics learning at SMA Muhammadiyah Pangsidi. The R&D approach was selected because it allows researchers to systematically design, develop, validate, and refine educational products to ensure their effectiveness and suitability for classroom implementation. The development procedure adopted in this study was based on the Borg and Gall

model, which was simplified into seven stages to suit the scope and conditions of the research.

The first stage was data collection, which aimed to identify the needs and problems related to Economics learning in the classroom. This stage involved classroom observations and informal interviews with Economics teachers and students at SMA Muhammadiyah Pangsid. Observations focused on teaching methods, instructional media used, student participation, and learning atmosphere. Interviews were conducted to explore teachers' difficulties in delivering Economics material and students' perceptions of the learning process. The results of this stage served as the basis for designing the instructional media.

The second stage was planning, which involved determining learning objectives, selecting the Economics material to be included in the e-comic, and designing the structure and storyline of the media. The learning objectives were formulated based on the applicable curriculum and basic competencies for tenth-grade Economics. At this stage, a storyboard was developed to outline the sequence of content, characters, dialogues, illustrations, and learning messages presented in the e-comic. Planning also included selecting appropriate software and technical specifications for media development.

The third stage was the development of the initial product. In this stage, the e-comic was created according to the planned design and storyboard. The development process included creating visual illustrations, writing dialogues and narratives, integrating learning material into the storyline, and organizing the layout of each page. The e-comic was designed in digital format so that it could be displayed using electronic devices such as computers or projectors. The initial product also included supporting components such as learning objectives,

instructions for use, and evaluation questions embedded in the media.

The fourth stage was expert validation, which aimed to assess the quality and feasibility of the developed e-comic before it was tested on students. Validation was conducted by media experts and subject-matter experts. Media experts evaluated aspects such as visual design, layout, readability, navigation, and technical quality, while subject-matter experts assessed the accuracy, relevance, and clarity of the Economics content. The validation process used structured questionnaires with a Likert-scale format, complemented by qualitative feedback in the form of comments and suggestions.

The fifth stage was product revision, which was carried out based on the feedback and recommendations provided by the experts. Revisions included improving visual elements, refining language and dialogue, adjusting the presentation of material, and enhancing the overall usability of the e-comic. This stage ensured that the product met academic and pedagogical standards and was ready for limited field testing.

The sixth stage was limited field testing, which involved a small group of tenth-grade students at SMA Muhammadiyah Pangsid. The purpose of this stage was to examine students' responses to the e-comic and to evaluate its practicality and attractiveness as a learning medium. During the trial, the e-comic was used in Economics learning activities, and students were asked to complete evaluation questionnaires after the lesson. Observations were also conducted to identify students' engagement and interaction during the learning process.

The final stage was product refinement, which involved making final improvements based on the results of the limited field testing. Student feedback and observation results were analyzed to identify aspects of

the media that needed further enhancement. The finalized e-comic was then prepared as the final product of the study.

Data in this study were collected using observation sheets, interview guidelines, and questionnaires. The data analysis techniques employed were quantitative and qualitative descriptive analysis. Quantitative data obtained from questionnaires were analyzed by calculating percentages to determine the feasibility level of the media, while qualitative data from interviews and open-ended questionnaire responses were analyzed descriptively to support and explain the quantitative findings.

Result and Discussion

This study resulted in the development of e-comic-based instructional media designed to support Economics learning for tenth-grade students at SMA Muhammadiyah Pangsid. The final product was a digital e-comic that integrates Economics learning materials into a narrative storyline supported by visual illustrations, dialogues, and contextual examples related to students' daily lives. The e-comic was structured systematically, consisting of a cover page, learning objectives, instructions for use, character introductions, content episodes, and closing sections to reinforce key concepts.

The feasibility of the developed e-comic was evaluated through expert validation and limited field testing. The media expert validation focused on visual appearance, layout design, readability, navigation, and technical quality. The results of the media expert assessment indicated that the e-comic achieved a very high feasibility level. The experts noted that the visual elements were attractive, the layout was well-organized, and the navigation was user-friendly. Minor suggestions included improving color

consistency and refining certain illustrations to enhance visual clarity.

Validation by subject-matter experts assessed the accuracy, relevance, and clarity of the Economics content presented in the e-comic. The results showed that the content met curriculum requirements and was appropriate for tenth-grade students. The experts emphasized that the integration of material into a storyline helped simplify complex economic concepts. Some revisions were suggested, such as refining terminology and adding brief explanations to strengthen conceptual understanding. After revisions were made, the material was considered highly feasible for classroom use.

Limited field testing was conducted with a group of tenth-grade students at SMA Muhammadiyah Pangsid. During the implementation, students used the e-comic as part of the Economics learning process. Observations showed that students were more attentive and actively engaged compared to conventional learning sessions. Many students participated in discussions related to the storyline and demonstrated curiosity about the economic concepts presented.

The results of the student response questionnaires indicated a very positive perception of the e-comic media. Most students stated that the e-comic was interesting, easy to understand, and enjoyable to use. They reported that the illustrations and dialogues helped them grasp the material more quickly and made the learning process less monotonous. Students also expressed that learning through e-comic increased their motivation and interest in Economics lessons.

Overall, the quantitative data from expert validation and student responses demonstrated that the developed e-comic–

based instructional media met the criteria of being highly feasible. The combination of visual storytelling and structured content successfully supported students' understanding and engagement in Economics learning. These results indicate that the e-comic media can function effectively as an alternative and complementary instructional medium in senior high school Economics classes.

Discussion

The findings of this study indicate that e-comic-based instructional media is highly feasible and effective as a supporting tool for Economics learning at SMA Muhammadiyah Pangsidi. The positive results from expert validation and student responses highlight the importance of innovative and visually engaging media in enhancing the learning process, particularly in subjects that involve abstract concepts such as Economics.

The high feasibility scores obtained from media experts suggest that visual design and technical quality play a crucial role in determining the effectiveness of instructional media. An attractive layout, clear illustrations, and user-friendly navigation help students focus on learning content rather than struggling with the media itself. This finding aligns with multimedia learning theory, which emphasizes that well-designed visual and textual elements can enhance learners' cognitive processing and reduce cognitive load.

Similarly, the positive evaluation from subject-matter experts confirms that integrating Economics material into a narrative format can improve content clarity and relevance. By presenting concepts through stories and real-life situations, the e-comic helps students connect theoretical knowledge with everyday experiences. This supports constructivist learning principles,

which state that learning becomes more meaningful when students actively construct knowledge based on contextualized information.

The positive student responses further demonstrate that e-comic media can increase motivation and engagement in learning. Students reported higher interest and enjoyment when learning Economics through e-comic compared to traditional lecture-based methods. Increased engagement is a critical factor in improving learning outcomes, as motivated students are more likely to participate actively, ask questions, and retain information. The storytelling aspect of the e-comic encourages curiosity and emotional involvement, which can strengthen memory and understanding.

Observations during the limited field testing showed that students were more attentive and interactive during lessons using the e-comic. This suggests that digital comic media can create a more dynamic classroom atmosphere and support student-centered learning. Teachers can use e-comics not only as a presentation tool but also as a discussion starter to encourage critical thinking and collaborative learning.

The results of this study are consistent with previous research that highlights the effectiveness of comic-based and digital instructional media in education. Such media have been shown to support visual learning styles, improve comprehension, and create a more enjoyable learning environment. In the context of Economics education, e-comics provide an innovative way to explain complex concepts in a simplified and engaging manner.

Despite its positive outcomes, this study has certain limitations. The field testing was conducted on a limited scale and involved a relatively small number of students. Therefore, the results may not fully

represent broader student populations. Future studies are recommended to conduct large-scale trials and to examine the impact of e-comic media on learning outcomes quantitatively, such as through pre-test and post-test designs.

In conclusion, the discussion of the results confirms that e-comic-based instructional media is a viable and effective alternative for supporting Economics learning. By combining visual storytelling with structured academic content, e-comics can enhance student motivation, engagement, and understanding. The development of such media represents a meaningful contribution to innovative teaching practices and offers practical implications for teachers seeking to improve the quality of Economics education.

Conclusion

This study concludes that the development of e-comic-based instructional media is a relevant and effective solution to support Economics learning at SMA Muhammadiyah Pangsidi. The systematic development process using the Research and Development approach successfully produced an instructional medium that integrates visual illustrations, narrative elements, and structured learning content. The e-comic media addresses the limitations of conventional teaching methods by

presenting Economics concepts in a more engaging, contextual, and student-friendly format.

The results of expert validation and limited field testing indicate that the developed e-comic meets the criteria of being highly feasible for classroom use. Media experts and subject-matter experts confirmed that the visual design, technical quality, and content accuracy were appropriate and aligned with curriculum requirements. Furthermore, student responses demonstrated positive perceptions of the e-comic, highlighting increased interest, motivation, and ease of understanding during the learning process. These findings suggest that e-comic media can effectively enhance student engagement and support meaningful learning experiences.

Based on these findings, it can be concluded that e-comic-based instructional media has strong potential to be used as an alternative and complementary learning resource in Economics education. The implementation of this media can contribute to creating more interactive and enjoyable learning environments. Future research is recommended to expand the scope of implementation, involve larger samples, and examine the impact of e-comic media on students' learning outcomes more comprehensively.

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