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Boosting Learning Interest in Phase F Marketing Students with Eko and Nomi Comics: Teaching Scarcity and Basic Economic Problems

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Abstract: Media are an important part of learning process. Choosing and using the right media should be done carefully to ensure that learning goals are met successfully. This research aimed to develop an engaging and effective comic-based learning media to enhance students' interest in learning Economics and General Administration, particularly on the topic of scarcity and basic economic problems for Phase F of Vocational High School (SMK) with Marketing Expertise Competency. The method used was Research and Development (R&D) with a Borg and Gall. The developed Eko and Nomi comic was designed using Pixton and Canva applications to effectively integrate visual and textual elements. This research aimed to determine: (1) the feasibility of digital comic-based learning media and (2) the practicality of the media was analyzed based on the results of the questionnaire filled out by the students. The subjects of this research were 66 students in the Phase F Marketing program and 3 validators. Data collection was conducted using observation, interviews, and questionnaires. The instruments used included a product feasibility questionnaire and a student response questionnaire. The results of the research showed that the feasibility tests by media and content experts, scores of 74.5% categorized as valid and 87.87% categorized as very valid were obtained, respectively. Thus, the average feasibility test score by experts was 81.18%, categorized as very valid. The practicality test was derived from the students' responses, with an average score of 80.09%, categorized as practical.

Keywords: Comic based learning, Economics education, Research and development, Media in education

Introduction

The development of technology and information had a significant impact on the learning process. Media and educational materials underwent substantial transformation. In the past, books were the only source of learning, but now various modern educational media utilized technology. With these innovations, students had broader access to information and more interactive learning methods, which certainly enhanced the quality of their education (Golding & Verrier, 2020). Media are an important part of learning process and are essential for effective education. Choosing and using the right media should be done carefully to ensure that learning goals are met successfully. Ultimately, the utilization and use of media support the effectiveness, efficiency, and attractiveness of learning. Regarding the issue of low learner participation and the quality of learning outcomes, the learning process needs full attention. Therefore, efforts are needed to increase the interest and motivation of students so that their quality of learning improves and they become more actively involved in the learning process activities, which in turn can enhance the quality of their learning outcomes. One effort that can be made

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is to design learning systematically, by empowering educational technology and learning media in the classroom. Thus, there needs to be a commitment from teachers to emphasize the empowerment of educational technology and learning media in the classroom (Setyosari et al., 2005). The limited number of learning media used in schools leads to problems in the learning activities, which can affect learning outcomes. In addition, the recent curriculum changes require educational institutions to make necessary adaptations. The transition from the 2013 curriculum to the Merdeka curriculum in Indonesia continues to present significant challenges for all educational settings. A key challenge is the availability of appropriate teaching materials. Schools and educators are availability of appropriate teaching materials. Schools and educators are actively engaged in efforts to provide learning resources that are compatible with the updated curriculum, especially in light of the introduction of new subjects.

Comics combine elements of education and entertainment, making learning activities interesting and enjoyable. It is hoped that learning through the use of comics can help students understand difficult material (Diah et al., 2021). Comics had become popular among various age groups, including children, teenagers, and adults (Wallner, 2018). Comics had proven to be an effective media in educational contexts, encouraging both students and teachers to appreciate the complexity and validity of academic texts. By integrating comics into the classroom, students not only engaged deeply with the material from literary and content perspectives but also discovered collaborative spaces that facilitated discussion and reflection. Subjects that can be developed into comics include topics such as scarcity and basic economic problems, as these subjects can be illustrated visually and include current economic information and news. Educational comics use colorful images with minimal text, combined with interactive content like crossword puzzles and other activities to attract students' interest in learning. Educational comics become engaging learning media and serve as interesting reading material. Comics can be considered learning media if their story content includes educational elements, making them not just entertaining. The research conducted by (Rahmatin et al., 2021) proves that comics can indeed be used as an alternative learning media and can facilitate student learning activities both in school and at home.

One of the problems in education is the lack of student interest due to unengaging classroom activities and the learning media used by teachers. Creating engaging classroom activities remains a challenge for most teachers. (Wicaksana et al., 2019). Learning media serves as a tool that facilitates the delivery of educational content and messages. Its primary purpose is to enhance student engagement, comprehension, motivation, and stimulation during the learning process (Rusmaini, 2023). Constructivist learning theory suggests that individuals create knowledge and derive meaning from their experiences. In this framework, learning is viewed as a constructive process in which learners develop internal representations of knowledge and make sense of their personal experiences (Sugrah, 2019). According to the constructivist learning theory, knowledge cannot be simply transferred from teacher to student. This means that learners must actively engage mentally in constructing their knowledge structures based on their cognitive maturity (Masgumelar & Mustafa, 2021). Students have the opportunity to actively engage in the learning process by using e-comic-based learning media developed using Pixton. They can interact with the e-comic, read character dialogues, and analyze images to understand the concepts presented. This allows students to actively construct their knowledge and relate it to their own understanding (Nurmayani & Sinaga, 2023).

Method

This research utilized the Research and Development (R&D) methodology defined by Borg and Gall. Educational R&D is a process aimed at developing and validating educational products. According to Borg & Gall (1984), the R&D cycle includes ten steps: (1) Research and information collecting, includes review literature, class room observations, and preparation, (2) Planning, (3) Develop preliminary form of product, (4) Preliminary field testing, (5) Main product revision, (6) Main field testing, (7) Operational product revision, (8) Operational field testing, (9) Final product revision, (10) Dissemination and implementation. Borg and Gall (1984) advise that when planning an R&D project for a thesis or dissertation, it is wise to conduct a small-scale project with limited original instructional design. Additionally, unless significant financial resources are available, costly instructinal media should be avoided. One way to simplify the project is to focus on just a few steps of the R&D cycle. Consequently, the researcher restricted the study tos ix steps, which included product revision following expert validation. Large scale research typically requires substantial funding, considerable time, and originality.

The creation of this digital comic used editing applications such as Pixton, Canva, and the website Heyzine. The population for this research consisted of 66 students from SMK Negeri 2 Temanggung. The data collection techniques used were learning media validation, which included material validation and media validation. The

instruments used included validation sheets filled out by validators and student response questionnaires. The data analysis technique was conducted by systematically organizing the data obtained from data collection. In the data analysis stage, qualitative descriptive and quantitative descriptive techniques were used. The qualitative data analysis technique was used to analyze the feedback, criticism, and suggestions from the validators. The quantitative data analysis technique was used to analyze numerical data obtained from the questionnaires given to material experts, media experts, and test subjects. The formula used to analyze the numerical data obtained from the questionnaires is as follows:

Analysis of Media Feasibility

$$V.ah = \frac{TSe}{TSh} \times 100\%$$

Description:

- V.ah = The validity of comic media
- TSe = Total empirical score
- TSh = Total maximum score

After conducting the validation test analysis, the following table of media feasibility criteria is used to determine the conclusions reached:

Table 1. Validity category

Validity Score (%)	Category
80 – 100	Very valid
61 – 80	Valid
41 – 60	Fairly valid
21- 40	Invalid
0 – 20	Very Invalid

Practicality Analysis of the Media

The category of practicality Eko and Nomi comic media is obtained from the analysis of questionnaires regarding the responses of students using Likert scale.

$$V.ah = \frac{K}{NK} \times 100\%$$

Description:

- N = Media practicality
- K = Total empirical score
- NK = Total maximum score

The data from student responses that have been analyzed are then categorized according to the following categories:

Table 2. Practicality Category

Practicality score (%)	Category
81 – 100	Very practice
61 – 80	Practice
41 – 60	Fairly practice
21 – 40	Inpractice
0 – 20	Very inpractice

Results and Discussion

Steps 1. Research and information collecting

This step involved conducting a needs analysis through observation and interviews with teachers and students. The results of these observations and interviews revealed a lack of teaching materials for Economics and General Administration in the Marketing Department. This occurred due to a curriculum change, from the 2013 Curriculum to Merdeka Curriculum. In 2021, the Indonesia Ministry of Education introduced the Merdeka Curriculum. This led to changes in the subject structure, with Economics and General Administration becoming new subjects in this curriculum. As a result, there was still a lack of teaching materials used in the learning process. Additionally, the teaching methods used were still conventional. Teachers delivered the material through lectures and writing on the board, which made students easily bored.

Steps 2. Planning

This step determined the development goals based on a needs analysis. The development of this comic-based learning media was aimed at providing educational resources. The comic was designed using the Pixton and Canva applications due to their advantages of being easy to use and having clear graphics. The Web HYZINE was used to convert the comic into a digital comic. The specifications of this comic product included a digital-based comic with a theme of scarcity and basic economic problems, equipped with various informational menus, material competencies, and quizzes designed to increase learning interest. The comic contained learning objectives, character introductions, and the storyline. The language used in the comic was chosen for its simple vocabulary in short sentences.

Steps 3. Develop preliminary form of product

This step involved developing the initial form of the product, creating the storyline, designing the characters, and integrating them with text and images. The next step was to implement these elements in the Pixton and Canva applications.



Figure 1. The process of creating the comic used Pixton

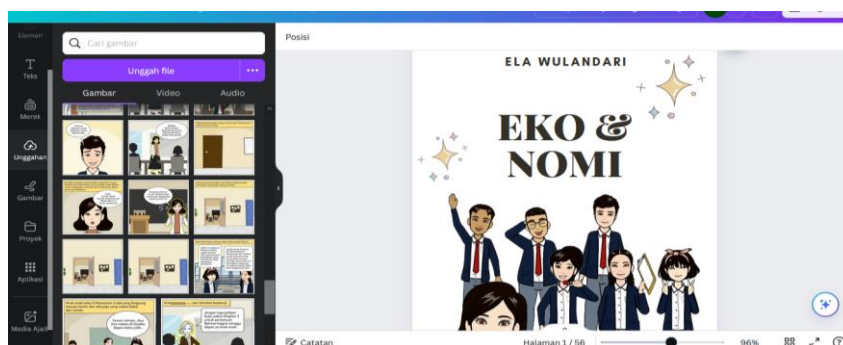


Figure 2. The process of creating the comic used Canva

Steps 4. Preliminary field testing

The comic product was validated by 2 material experts and 1 media expert before being field-tested. Expert validation was conducted to ensure that the product was suitable for testing. The material expert evaluation aimed to assess the feasibility of the content, specifically the material on scarcity and basic economic problems according to the curriculum, as well as the suitability of the comic as a learning media. The media expert evaluation was necessary to review the aspects of adherence to the minimal standards for comic creation. This was done to determine the effectiveness of the comic media in learning.

Media Feasibility

1. Media Expert Validation

The media validation results showed an average graphic feasibility aspect score of 91.4%, categorized as very valid. However, the language feasibility aspect scored only 66.67%, categorized as valid. The average validity score from media experts was 74.5%, categorized as valid.

Table 3. Media expert validation test results

Aspects	Percentage	Category
Aspects of graphic feasibility	91,4%	Very valid
Aspects of language feasibility	66,67%	Valid
Average	74,5%	Valid

2. Material Expert Validation

Validation by two material experts yielded an average content feasibility score of 88%, presentation feasibility of 86%, contextual assessment of 87.78%, and language feasibility of 89.17%, categorized all aspects as very valid. The average validity test score from media experts was 87,87%, categorized as very valid.

Table 4. Material expert validation test result

Aspects	Percentage	Category
Aspects of content feasibility	88%	Very valid
Aspects of presentation feasibility	86,67%	Very valid
Contextual	87,78%	Very valid
Language feasibility	89,17%	Very valid
Average	87,87%	Very valid

3. Preliminary Field Testing

A preliminary small scale practicality test was conducted with 17 Marketing students from SMK Negeri 2 Purworejo. The result indicated a practicality score of 77,82%, which was categorized as practical. The assessment of practicality covered seven aspects: suitability of learning material, emotional involvement and motivation, readability and visual presentation, usefulness of learning media, development of critical thinking skills, interest in learning, and ease of use of the media. All aspects were categorized as practical. Bases in these small scale practicality results, the Eko and Nomi comis is considered practically effective for learning activities.

Table 5. The result of students's responses on small scale

Aspects of Assesment	Percentage	Category
Suitability of Learning Material	76,47%	Practice
Emotional Involvement and Motivation	79,61%	Practice
Readability and Visual Presentation	78,82%	Practice
Usefulness of Learning Media	80,39%	Practice
Development of Critical Thinking Skills	76,47%	Practice
Interest in Learning	76,08%	Practice
Ease of Use of Media	76,86%	Practice
Average	77,82%	Practice

Steps 5. Main product revision

The product was revised based on feedback to improve its quality and performance. The media expert provided input on the comic's layout. The use of color needed to be appealing and not contrasting, and the layout had to be arranged neatly. Therefore, the comic was revised using a white background and improving the layout. Additionally, the material expert suggested including readings on the current scarcity issues.



Figure 3. Before and after the revision of the layout and background

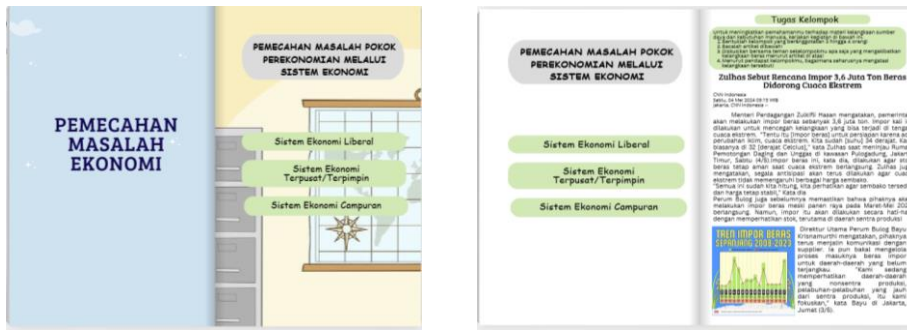


Figure 4. Before and after the revision of the background color and addition of current Issues

Steps 6. Main field testings

Practicality of the Media

A large-scale field test was conducted prior to the widespread launch of the product. This product trial was carried out at SMK Negeri 2 Temanggung. The results of the large scale practicality test indicated a score of 80.09%, which was categorized as practical. Among the seven assessment aspects, three aspects were categorized as very practical: suitability of learning media, readability and visual presentation, and interest in learning. The remaining aspects were also categorized as practical.

Table 6. The result of students's responses

Aspects of Assesment	Percentage	Category
Suitability of Learning Material	82,63%	Very practice
Emotional Involvement and Motivation	78,35%	Practice
Readability and Visual Presentation	82,12%	Very practice
Usefulness of Learning Media	79,09%	Practice
Development of Critical Thinking Skills	76,87%	Practice
Interest in Learning	81,41%	Very practice
Ease of Use of Media	80,10%	Practice
Average	80,09%	Practice

Discuss

This learning media was beneficial for students in understanding economic issues occurring around them. Moreover, this learning media strengthened students's sensitivity to economic problem by presenting real

examples such as gas shortages, oil, gasoline, and others. Teachers could use comics as a stimulus to pose questions, facilitate discussions, and encourage deeper reflection on the topic of economic issues. Suri et al (2021) also mentioned that the advantage of this android-based e-comic was that the content of the comic stories could be easily understood because it was related to daily life. The comic included animations that helped explain abstract fluid concepts, and it featured evaluations to assess students' understanding of fluid material. Teachers could also review students's learning progress through their responses to the Economics comic. Creating comics through Pixton, canva, and Web Hyzine made it easier for researchers to produce the product. Alost all teenage students had mobile phones. Therefore, digital comic learning media had an advantage, as they could carry the learning material in the form of digital comics that could be accessed anytime and anywhere. Comic media makes it easier for students to develop their imagination and ideas from the images presented (Khadar et al., 2020). Economics was a subject that required innovation in the way knowledge was delivered to students, making the use of learning media very helpful for educators in conveying messages to students. Digital comics as a learning media were suitable for students because they were familiar with technological advancements (Rahmatullah et al., 2020). The material must be relevant, in-depth, and in line with the learning objectives in order to provide a comprehensive understanding (Bukian et al., 2024).

The assessment aspects in the development evaluation used in the research included two criteria: (1) the media presentation component, and (2) the material feasibility component. The media expert's evaluation covered aspects of graphical feasibility and language feasibility. The validator generally commented that some content improvements were needed to make the comic more engaging to read. There was a need to improve the background color and layout to make it more attractive. The validator concluded that the Eko and Nomi comic was suitable for field testing with revisions. The media expert's validity test result was 74.5%, categorized as valid. The material expert's evaluation included aspects of content feasibility, presentation feasibility, contextual assessment, and language feasibility. The validator generally commented that the comic was already good and engaging, providing a new media for students and sparking curiosity to read until the end. The validator agreed that the Eko and Nomi comic was suitable for field testing with revisions. The material expert's validity test result was 87.87%, categorized as very valid.

The limited use of technology based learning media affected students' interest in learning, ultimately leading to low academic outcomes (Bukian et al., 2024). Comics as a learning media offered an engaging and effective approach for students due to their straightforward nature, ease of understanding, and ability to bring lessons to life with visual creativity. Comics also provided a fresh perspective in the learning process, enhanced students' reading interest, and made it easier for them to grasp abstract concepts. Factors such as high student interest in comics, accessibility, and the ease of understanding the language used made comics an ideal choice for enriching students' learning experiences, helping them solve problems, and increasing their interest in various disciplines (Mikamahuly et al., 2023). The attractive graphic elements in e-comics enhanced students' reading interest. E-comics provided a different reading experience through information presented visually. They also helped in the understanding of concepts (Bukian et al., 2024). The research conducted Rahmatin et al., (2021) proved that comics could be used as an alternative learning media for classroom activities and facilitated students' learning both at school and at home. Using interesting media or reading book influences the students' learning understanding (Harmawati et al., 2020). The Eko and Nomi comics had various strengths and weaknesses. Their strengths included their use as a teaching aid in the subjects of Economics and General Administration, particularly in the material on scarcity and basic economic problems for Phase F in Marketing Competency. These comics were more engaging compared to textbooks or media that contained only text, as they presented images and illustrations that appealed to students. Additionally, the comics provided examples of recently occurring issues and offered variations such as crossword puzzles to capture students' interest. The Eko and Nomi comics were available in both physical and digital formats, making them accessible for reading at school or at home. E-comics are a learning media that adapts to the digital era. E-comics offer convenience, allowing users to access E-comics anytime and anywhere. However, the product also had some weaknesses. The stories in these comics still appeared somewhat rigid, as teenagers desired more engaging and longer stories, with funny animations and the inclusion of additional material in the next chapters.

Conclusion

Based on the research findings and discussion, it can be concluded that the initial condition of teaching Economics and General Administration at SMK Negeri 2 Temanggung involved the teacher using the lecture method and the blackboard as a media. The students listened and then took notes on what the teacher wrote on the board. The students were still passive in the classroom. The school was still adjusting to the curriculum changes. These curriculum changes also affected the teaching media, which still needed significant development

to align with the current material and conditions. The development of e-comic media became one solution to the lack of teaching materials; moreover, e-comics were also engaging teaching media that met the needs of the students. The topic of Scarcity and Basic Economic Problems was the initial material in economics teaching. It was hoped that the Eko and Nomi comic could be continued with subsequent material. Based on the feasibility tests by media and content experts, scores of 74.5% categorized as valid and 87.87% categorized as very valid were obtained, respectively. Thus, the average feasibility test score by experts was 81.18%, categorized as very valid. The practicality test was derived from the students' responses, with an average score of 80.09%, categorized as practical. Therefore, the Eko and Nomi learning comic was considered suitable and practical for use and in the learning process to increase students' motivation and interest in learning.

Recommendations

The Eko and Nomi comic can be more widely used as a learning media in the study of Economics and General Administration in vocational schools. This comic not only captures students' interest through its appealing visuals and stories relevant to everyday life but also effectively facilitates the understanding of complex economic concepts. Suggestions for future comic media development research include paying attention to graphics and storyline. Enhance the design and appearance to make it more engaging. Additionally, this comic media can be applied to other subjects to create more interactive and engaging learning experiences, ultimately improving student learning outcomes. Therefore, it is recommended that schools and teachers consider using this digital comic as part of an innovative teaching strategy to support more active and interactive student engagement. Teachers should also prepare enjoyable teaching methods that actively involve students.

Scientific Ethics Declaration

The authors declare that the scientific ethical and legal responsibility of this article published in EPESS Journal belongs to the authors.

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