DEVELOPMENT OF INTERACTIVE LEARNING MEDIA BASED ON THE PROBLEM SOLVING METHOD USING PREZI FOR THE TOPIC OF ENVIRONMENTAL CHANGES

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ABSTRACT

The process of learning Biology is still dominated by teachers as the sole source of information, using less interactive teaching media such as chalkboards and textbooks. The use of interactive media is considered appropriate for fostering students' problem-solving abilities, especially in the topic of Environmental Changes. The development of interactive media is crucial. This study aims to develop an interactive learning media using Prezi based on the problem-solving method for the topic of Environmental Changes. The research utilizes the R&D (Research and Development) model following the Borg and Gall research design, with the following stages: potential and problem stage, data collection stage, product design stage, design validation stage, design revision stage, and product revision stage.

Keywords: Development of Interactive Media, Prezi, Problem Solving, Environmental Changes.

INTRODUCTION

The learning process, which encompasses both the process of learning and teaching, cannot be separated from classroom activities.

Effective classroom learning activities demand collaboration between teachers and students. Teachers must strive to provide the best teaching

materials. Therefore, innovation and new ideas are needed to develop the presentation of materials. The potential of an educator is seen in how they choose an appropriate method, approach, and media for conveying the material [1].

The future challenges are always changing, accompanied by increasingly intense competition. This demands educators to be not only skilled in a particular field but also capable of developing their specialized areas. Thus, it will produce students who can think creatively and critically in problem-solving [2]. Efforts that can be undertaken to address this include the implementation of effective learning. Effective learning can be crafted by educators through the development of creative and innovative learning media as tools in the learning process. One of the interactive learning media is the use of Prezi software. Prezi is a digital presentation tool capable of presenting text, images, videos both offline and online, equipped with contemporary audio and animations that provide a

dramatic experience for students, making the learning material presented through Prezi more memorable and impactful in the minds and memories of students compared to other digital presentation tools such as PowerPoint and the like.

The Prezi application utilizes a Zooming User Interface (ZUI) system, allowing users to zoom in and out of the display, making presentations appear more dynamic and significantly more engaging [3]. The presence of given problems will encourage students to be more active in their learning, understand the content of the lesson, challenge students' thinking abilities to overcome the problems they encounter, and find appropriate solutions to those problems. [4].

The utilization of creative and innovative media packaged in an engaging method will enable students to imagine and become more creative. One of the teaching methods that is considered to develop students' thinking skills is the problem-solving method. The problem-solving method is a process designed to assist students

in solving problems. Problem-solving carries a dual meaning, both the process of solving the problem itself and the result of problem-solving efforts, which is the solution.

Especially in the subject of Environmental Changes, which requires students to understand and analyze environmental issues occurring around them. Therefore, the use of Prezi media based on the problem-solving method can be utilized by students as a source of information applicable in the classroom. Students can use it to solve problems related to environmental changes, enabling them to comprehend and implement efforts to preserve their environment.

METHOD

This research employed the Research and Development (R&D) methodology. Research and

Development is a research method used to produce specific products and test the effectiveness of these products [5]. The research and development of the instructional media were conducted using the Borg & Gall model, with the following stages: potential and problem stage, data collection stage, product design stage, design validation stage, design revision stage, and product revision stage.

RESULTS AND DISCUSSION

The research results regarding the development of instructional media using the Borg & Gall model with stages including the potential and problem stage, data collection stage, product design stage, design validation stage, design revision stage, and

product revision stage are explained as follows:

Potential and Problem Stage

The development research that employs the Borg and Gall model begins with the potential and problem stage. This stage is utilized to identify the issues in schools related to the use of instructional media in the teaching and learning processes that have taken place. Research always starts with the existence of potential and problems. These issues can be addressed through R&D by investigating them, leading to the discovery of an effective model, system, or integrated approach that can be used to overcome these problems [6].

The importance of the teacher's role in utilizing media can enhance students' interest, motivation, and learning outcomes. One-way learning encompasses two aspects that can lead to student passivity in learning. Therefore, it is hoped that the educator's response can foster motivation in educators regarding the significance of media utilization in teaching and learning [7].

Data Collection Stage

The data collection stage is carried out with the aim of gathering information through observation and interviews. The information and data obtained can be used as material to plan and create a specific product intended to address the issues [8]. The results of the data collection will be used as a reference for planning the creation of instructional media products. The use of media in the Environmental Changes topic is currently limited to readings from textbooks, newspapers, or similar sources. This has resulted in passive students who have a limited understanding of the explanations about Environmental Changes, and only a fraction of the students pay attention to the teacher's explanations.

The media that can be used is the interactive instructional media Prezi based on the problem-solving method. This media allows for capturing students' attention as it not only presents theories but also includes

news videos about environmental changes, images, and supporting animations that can engage students, facilitate their understanding of the material, and enable them to analyze environmental issues. Prezi can shift the paradigm of learning from being teacher-centered to student-centered, where the teacher acts as a facilitator, making students more actively engaged in learning and no longer solely reliant on the teacher as the sole source of information [9].

Product Design Stage

The product design stage is the phase of creating instructional media aimed at designing an interactive instructional media using the Prezi platform based on the problem-solving method for the topic of Environmental Changes. The design of this instructional media product will be developed online through the Prezi.com website.

The product design stage involves creating the design of instructional media, including the content, images, and videos in accordance with the basic competencies (KD) and learning indicators. This stage is carried out by designing an interactive instructional media using the Prezi platform based on the problem-solving method for the Environmental Changes topic. The main tasks include gathering materials on Environmental Changer, such as theories, news videos, and supporting theory videos from YouTube, images, and articles that align with the basic competencies and indicators. Then, selecting templates, themes, colors, and animations accessible on the *prezi.com* website to make the designed media appealing to student.

Figure 1. Main Display of the Media

Figure 2. Pollution Slide

Design Validation Stage

The interactive instructional media based on the problem-solving method, created using Prezi, is then validated by expert validators consisting of two content expert validators who assess the material aspects of the instructional media, including content, appearance, program, and linguistic aspects, and two media expert validators who assess the media aspects, covering usability, text quality, image/video

quality, design quality, and language/word usage [10]. The media that has been validated by the validators receives feedback and suggestions for media improvement before being tested in schools. The functionality of instructional media should be supported by content that aligns with concepts and a systematic and coherent material presentation that is clear [11]. The assessment aspects used for validation by meia expert validators include usability, text quality, video/image quality, color quality, design quality, and language usage. The suitability of the interactive instructional media based on the problem-solving method using Prezi for the Environmental Changes topic can be seen from the assessment results conducted by the media expert validators in the table below:

Table 1. Media Validation

No	Assessment Aspect Category	V1	V2	Total Score		Max Score	%
1	Usability	25	26	51	60	85	Very Feasible
2	Text Quality	7	10	17	20	85	Very Feasible
3	Image/Video Quality	16	18	34	40	85	Very Feasible
4	Color Quality	13	13	26	30	86,67	Very Feasible
5	Design Quality	8	9	17	20	85	Very Feasible
6	Language Usage	12	15	27	30	90	Very Feasible
	Total Aspects	**81**	**91**	**172**	**200**	**86,16**	**Very Feasible**

The feasibility test results conducted by expert validators on the developed instructional media obtained an overall percentage of 86.16% with the category of very feasible. This indicates that the interactive instructional media based on the problem-solving method using Prezi is suitable for use as a teaching tool in the Environmental Changes topic. This is due to its strong performance in terms of usability, text quality, image/video quality, color quality, design quality, and language usage, which collectively facilitate the teaching and learning process. Prezi-based instructional media takes into account visual principles in teaching, thereby motivating students by capturing their attention and aiding educators in simplifying complex information [12].

Meanwhile, material feasibility consists of three assessment aspects: instructional design, content, and language and communication assessment. The results of the feasibility test for the interactive instructional media based on the problem-solving method using Prezi, conducted by content experts, can be seen in the following table:

Table 2. Material Validation

No	Assessment Aspect	V1	V2	Total Score	Max Score	%	Category
1	Instructional Design.	29	29	58	60	96,67	Very Feasible
2	Content	45	49	94	100	94	Very Feasible
3	Language and Communication	16	19	35	40	87,5	Very Feasible
	Total Aspects	**90**	**97**	**187**	**200**	**93,5**	**Very Feasible**

The feasibility test results conducted by content expert validators on the developed instructional media obtained an overall percentage of 93.5% with the category of very feasible. This indicates that the interactive instructional media based on the problem-solving method using Prezi is suitable for use as a teaching tool in the Environmental Changes topic. The developed media is highly suitable in terms of instructional design, content, as well as language and communication, thereby facilitating educators in delivering the material and helping students understand its content. According to the research by Diyah Ayu Setia Ningsih et al., Prezi can shift the paradigm of learning from being teacher-centered to student-centered, with the teacher acting as a facilitator, thus making students more actively engaged in learning and no longer solely relying on the teacher as the sole source of information.

Design Revision Stage

The design revision stage is carried out to rectify the deficiencies in the instructional media product that has been designed and validated. The media is validated by experts in the field, allowing weaknesses and suggestions from the validators to be identified. These weaknesses are then

addressed by improving the design. Some suggestions provided by validators include the main media display, selection of background and slide colors, addition of animations, images, and supporting videos related to the Environmental Changes topic, as well as the appearance of Student Worksheets.

Product Revision Stage

The product revision stage aims to refine the developed interactive instructional media based on the problem-solving method using Prezi. In this stage, deficiencies identified during the design validation and design revision phases, including errors in writing and the addition of subtitles to each slide, as well as improvements in writing neatness, are reviewed and revised, considering both writing and layout aspects. Once the product revision stage is completed, the media will be tested in schools to observe educators' responses to the interactive instructional media based on the problem-solving method using Prezi that has been developed for the Environmental Changes topic.

CONCLUSIONS

The development of interactive instructional media based on the problem-solving method using Prezi for the Environmental Changes topic employs the Research and Development (R&D) model with the Borg and Gall research design. This design encompasses stages including the potential and problem stage obtained through researcher observations and interviews, the data collection stage, the product design stage using the Prezi.com website, the design validation stage by two expert validators in media and content, the design revision stage based on validator suggestions and comments, and the product revision stage aimed at addressing weaknesses in the resulting product.

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