

DEVELOPMENT OF PREZI-BASED TEACHING MATERIALS FOR THEME 6, SUBTHEME TEMPERATURE AND HEAT, LEARNING 1

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Abstract

This research and development study aimed to develop Prezi-based teaching materials and determine their feasibility for Grade V elementary school learning. The study employed the ADDIE development model, consisting of Analysis, Design, Development, Implementation, and Evaluation. The product was validated by a media expert, a language expert, and a subject-matter expert, and was subsequently tested with 40 Grade V students at SDN 1 Benteng. The media expert validation obtained a score of 90.67%, the language expert validation reached 94.67%, and the subject-matter expert validation reached 93.33%; all three results were categorized as highly feasible. After revision based on expert feedback, the developed teaching materials were implemented in the classroom. Student responses to the use of the Prezi-based teaching materials reached 87.34%, which was categorized as very good. These findings indicate that the Prezi-based teaching materials developed for Theme 6, Subtheme Temperature and Heat, Learning 1 are highly feasible and received very positive responses from students, making them suitable for use as digital teaching materials in Grade V elementary school learning.

Keywords: Development, Teaching Materials, Prezi, Temperature and Heat.

Abstrak

Penelitian dan pengembangan ini bertujuan mengembangkan bahan ajar berbasis Prezi serta mengetahui kelayakannya untuk pembelajaran kelas V sekolah dasar. Penelitian menggunakan model pengembangan ADDIE yang terdiri atas tahap Analysis, Design, Development, Implementation, dan Evaluation. Produk divalidasi oleh ahli media, ahli bahasa, dan ahli materi, kemudian diuji cobakan kepada 40 peserta didik kelas V SDN 1 Benteng. Hasil validasi ahli media memperoleh skor 90,67%, validasi ahli bahasa 94,67%, dan validasi ahli materi 93,33%; seluruh hasil tersebut berada pada kategori sangat layak. Setelah diperbaiki berdasarkan masukan para ahli, bahan ajar diimplementasikan dalam pembelajaran. Respons peserta didik terhadap penggunaan bahan ajar berbasis Prezi memperoleh persentase 87,34% dengan kategori sangat baik. Dengan demikian, bahan ajar berbasis Prezi pada Tema 6 Subtema Suhu dan Kalor Pembelajaran 1 dinyatakan sangat layak dan memperoleh respons sangat positif dari peserta didik sehingga sesuai digunakan sebagai bahan ajar digital pada pembelajaran kelas V sekolah dasar.

Kata Kunci: Pengembangan, Bahan Ajar, Prezi, Suhu dan Kalor.

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INTRODUCTION

Ideal learning creates an active classroom atmosphere in which students feel challenged, motivated, and engaged, while the learning process remains enjoyable rather than monotonous. The involvement of technology in the Industry 4.0 era provides teachers with opportunities to design more varied learning experiences and to develop instructional resources that are responsive to students' needs. Teaching materials are an important component of instruction because they can support teachers during the learning process, motivate students, and help learners achieve predetermined competency standards (Bahtiar, 2015). Therefore, the quality and variety of teaching materials play an important role in supporting effective classroom learning.

Preliminary observations and an interview with Vitara Ramadhan, S.Pd., the Grade V homeroom teacher at SDN 1 Benteng, indicated that the use of teaching materials had not been optimal and that currently available technology was not being fully utilized for learning. Classroom instruction relied mainly on the thematic textbook provided by the government. This condition contributed to students becoming bored and less motivated during learning activities. These findings indicate the need for instructional innovation, particularly through the development of technology-supported teaching materials.

One technological application that can be used to develop interactive teaching materials is Prezi. Ratnaningsih and Mei Ningsih (2019) explain that Prezi can be used to create interactive presentations and provides more varied presentation features than conventional slide-based software. Lestari (2019) also describes Prezi as presentation software that supports attractive themes and visual displays through animations, audio, and other multimedia elements. Similarly, Muharni et al. (2021) note that Prezi allows users to develop creative presentation designs and provides a Zooming User Interface (ZUI), which can make presentation navigation more dynamic and engaging.

In this study, the Prezi-based teaching materials were designed to integrate learning content with slides, images, animations, instructional videos, matching activities, and evaluation questions. Such integration was intended to provide a more varied learning experience and enable the teaching materials to function as a digital learning resource that students could access beyond conventional printed materials. The visual and multimedia characteristics of Prezi were expected to support students' attention, motivation, and involvement in the learning process.

Previous studies have reported positive results concerning the use of Prezi in educational media development. Saroha and Simbolon (2019) developed Prezi-based learning media for thematic learning in elementary schools and reported very good results based on expert validation and student responses. Widowati and Purwanto (2018) also reported that Prezi-based learning media was feasible for use and could support learning activities. These studies provide a basis for further development of Prezi-supported teaching materials tailored to specific elementary school content.

Based on the identified classroom needs and previous findings, this study focused on the development of Prezi-based teaching materials for Theme 6, Subtheme Temperature and Heat, Learning 1. The objectives of the study were to develop the teaching materials systematically

using the ADDIE model and to determine their feasibility based on expert validation and student responses.

METHOD

This study employed a Research and Development (R&D) approach using the ADDIE model. According to Cahyadi (2019), the ADDIE model consists of five stages: Analysis, Design, Development, Implementation, and Evaluation. The model was used to guide the systematic development of Prezi-based teaching materials for Grade V elementary school learning.

The subjects involved in product development included three validators. The media expert and language expert were lecturers from the Faculty of Teacher Training and Education, Universitas Pakuan, while the subject-matter expert was the Grade V teacher at SDN 1 Benteng. The product trial involved 40 Grade V students at SDN 1 Benteng.

Data were collected through documentation, observation, interviews, and questionnaires. Observation and interviews were conducted to identify classroom conditions and the teaching materials used by the teacher, thereby establishing the need for Prezi-based teaching materials. Four questionnaires were prepared: a media expert validation questionnaire, a language expert validation questionnaire, a subject-matter expert validation questionnaire, and a student response questionnaire.

The collected data were analyzed using qualitative and quantitative approaches. Qualitative data consisted of comments and suggestions from the media, language, and subject-matter experts concerning the design, language, and learning content of the developed product. Quantitative data were obtained from expert validation scores and student response scores and were analyzed using descriptive statistics. The expert validation and student response instruments used a Likert scale. Percentage scores were calculated by dividing the obtained score by the maximum possible score and multiplying the result by 100.

Table 1. Feasibility Interpretation Criteria

No.	Percentage	Qualification
1	81%-100%	Highly Feasible (usable without revision)
2	61%-80%	Feasible (usable with minor revision)
3	41%-60%	Less Feasible (major revision required)
4	21%-40%	Not Feasible (revision required)
5	<20%	Highly Infeasible

The feasibility interpretation used in the source study was adapted from Fitri and Haryanti (2020).

Table 2. Student Response Criteria

No.	Percentage	Qualification
1	81%-100%	Very Good
2	61%-80%	Good
3	41%-60%	Fairly Good
4	21%-40%	Poor
5	<20%	Very Poor

The student response interpretation criteria in the source study were adapted from Ferdiansyah et al. (2021).

RESULTS AND DISCUSSION

Results

The needs analysis began with an interview with Vitara Ramadhan, S.Pd., the Grade V homeroom teacher at SDN 1 Benteng. The interview indicated that the use of teaching materials had not been optimal and that the integration of available technology into classroom learning remained limited. Learning activities relied mainly on the thematic textbook provided by the government, and students were reported to become bored and less motivated. Based on these findings, the researchers identified a need for more innovative digital teaching materials.

The development process produced Prezi-based teaching materials through the five ADDIE stages. Before the product was implemented with students, it underwent expert validation to determine its feasibility. Validators reviewed the product, provided comments and suggestions, and completed the assessment instruments. The media expert recommended shortening some explanations and dialogues, improving numbering and bullet organization, converting several questions into multiple-choice format, refining the reference list, and presenting the author biography in one paragraph. The language expert recommended improving vocabulary, maintaining consistency in the use of Indonesian, and revising several sentences in the science questions. The subject-matter expert recommended correcting the mapping and order of the subject title, basic competencies, indicators, and learning objectives. The product was revised based on these recommendations before final validation.

Table 3. Media Expert Validation Results

Assessment Aspect	Items	Maximum Score	Obtained Score
Presentation and design of Prezi-based teaching materials	8	40	36
Use of Prezi-based teaching materials	7	35	32
Total	15	75	68

Table 4. Language Expert Validation Results

Assessment Aspect	Items	Maximum Score	Obtained Score
Language structure used in the Prezi-based teaching materials	7	35	33
Language suitability and conventions used in the Prezi-based teaching materials	8	40	38
Total	15	75	71

Table 5. Subject-Matter Expert Validation Results

Assessment Aspect	Items	Maximum Score	Obtained Score
Alignment of basic competencies, indicators, and learning objectives	3	15	14
Accuracy of learning content	6	30	27
Evaluation questions	6	30	29
Total	15	75	70

The media expert validation conducted by Aries Maesya, M.Kom. produced a percentage score of 90.67%. The language expert validation conducted by Dr. Tustiyana Windiyani, M.Pd. produced a score of 94.67%, while the subject-matter validation conducted by Vitara Ramadhan, S.Pd. produced a score of 93.33%. According to the feasibility criteria used in the study, all three scores fall within the 81%-100% range and are therefore categorized as highly feasible. These results indicate that the Prezi-based teaching materials were suitable for implementation with Grade V students after revision based on expert feedback.

After the validation and revision stages, the product was tested with 40 Grade V students at SDN 1 Benteng. The field trial aimed to determine students' responses to the implementation of the Prezi-based teaching materials during learning. The response instrument assessed the

appearance and use of the teaching materials as well as students' perceived understanding of the learning content.

Table 6. Student Response Results

Assessment Aspect	Items	Maximum Score	Mean Obtained Score
Appearance and use of Prezi-based teaching materials	6	30	25.91
Understanding of Theme 6: Temperature and Heat, Learning 1	4	20	17.72
Total	10	50	43.67

The overall student response percentage was 87.34%. Based on the response criteria used in the study, this percentage falls within the 81%-100% range and is categorized as very good. The result indicates that students responded positively to both the appearance and use of the Prezi-based teaching materials and to the way the learning content was presented.

Discussion

The development of the Prezi-based teaching materials followed a systematic Research and Development process through the ADDIE stages. In the source study, R&D was positioned as an approach for developing and validating educational products through planning, production, testing, revision, and implementation. The use of ADDIE was appropriate because each stage provided a clear sequence beginning with the identification of classroom needs and ending with the evaluation of student responses.

The analysis stage showed that Grade V learning at SDN 1 Benteng relied mainly on government-provided thematic books and had not fully utilized available educational technology. This situation supported the decision to develop digital teaching materials. Teaching materials should be designed in accordance with curriculum requirements and learning objectives so that they can function as a guide for teachers and as a learning resource for students (Magdalena et al., 2020). Nurdyansyah and Mutala'liah (2015) similarly emphasize the role of teaching materials in supporting both teachers and students during learning activities.

At the design and development stages, the researchers selected Theme 6, Subtheme Temperature and Heat, Learning 1 and prepared the structure of the teaching materials before realizing the design in Prezi. Prezi was selected because it enables the integration of text, images, animation, video, and evaluation activities within a dynamic presentation environment. Lestari (2019) notes that Prezi provides attractive visual themes and multimedia features, while Siswanto (2021) describes practical features that allow users to create, save, and share Prezi presentations. These characteristics supported the researchers' intention to make the learning materials more engaging than conventional textbook-only instruction.

The expert validation results provide evidence that the developed product met the required feasibility standards. The media validation score of 90.67% suggests that the presentation and functional use of the product were considered highly appropriate. The language validation score of 94.67% indicates that the revised language was highly suitable, while the subject-matter validation score of 93.33% demonstrates strong alignment between the material, learning competencies, indicators, objectives, and evaluation tasks. Importantly, the product was revised in response to expert recommendations before being implemented, indicating that the validation process functioned not only as an assessment mechanism but also as a formative improvement stage.

The implementation stage involved 40 Grade V students, who provided an overall response score of 87.34%. This very good response suggests that students perceived the Prezi-based teaching materials positively in terms of appearance, usability, and presentation of the learning content. The result is consistent with Saroha and Simbolon (2019), who reported positive expert validation and student responses to Prezi-based thematic learning media in elementary school. It also aligns with Widowati and Purwanto (2018), who found that Prezi-based media was feasible for classroom use. These comparisons strengthen the interpretation that interactive multimedia presentation can serve as a useful alternative to conventional teaching materials.

The study therefore demonstrates the potential of Prezi-based teaching materials as a digital learning resource that responds to the identified need for more varied and technology-supported instruction. However, the evidence reported in this study focuses on expert feasibility and student responses. Because the source study did not report a pretest-posttest comparison or another direct measure of learning effectiveness, the results should be interpreted primarily as evidence of product feasibility and positive user response rather than as proof of improved learning achievement.

CONCLUSION

Based on the research and development process, the Prezi-based teaching materials for Theme 6, Subtheme Temperature and Heat, Learning 1 were successfully developed using the ADDIE model. The product was designed in response to the limited use of varied teaching materials and educational technology in Grade V learning at SDN 1 Benteng and incorporated text, images, animations, instructional videos, and evaluation activities. Expert validation showed that the product was highly feasible, with scores of 90.67% from the media expert, 94.67% from the language expert, and 93.33% from the subject-matter expert. Following revision, the teaching materials were tested with 40 Grade V students and received an overall student response of 87.34%, which was categorized as very good. These findings indicate that the developed Prezi-based teaching materials are highly feasible and well received by students, and therefore have strong potential for use as an innovative digital teaching resource in Grade V elementary school learning.

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