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Artikel

Development Of Website-Based Learning Media Blog Earth Structure and Layers Material (WeBSriBu)

Aida Amalia Fadilah[1*], Aulia Mutakhidatul Umah[2] , Aziza Karenina[3]

[1,2,3] Institut Agama Islam Negeri Ponorogo, Ponorogo

**Corresponding Address: aidaamaliafadhila@gmail.com, muttakhidah01@gmail.com*

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ABSTRACT

Technological developments in the education sector require teachers to develop creative learning media. Technology-based learning media such as websites. The research aims to. 1) provide innovation in the form of developing a blog website, media for learning about the structure and layers of the earth. 2) determine the level of feasibility and effectiveness of website-based blog learning media. The method used is the research and development (RnD) method using the Borg and Gall development. Media development procedures include research, information gathering, planning, initial product development and validation. Data collection uses qualitative data obtained from validation results, analysis of reference sources, teacher questionnaires and student questionnaires. The research results show the following: 1) the product is a blog website-based learning media about the structure and layers of the earth using Google Site. 2) Blog website-based learning media products on the structure and layers of the earth are declared suitable for use as learning media based on the validation results of design experts with a score of 87.5% and display experts with a score of 84.38%, so classified as very feasible. Material experts have a score of 78.13%, material suitability experts with the curriculum are 75%, and question experts are 71.88% so classified as adequate. Based on the data, the five experts who received the highest scores were design, appearance and material experts. The lowest data are experts in suitability of material to the curriculum and question experts.

INTRODUCTION

Information and communication technology in the 4.0 era is developing very rapidly. According to Husniyah et al., (2022) UNESCO has established 4 pillars of education, including: learning to know, learning to do, learning to be, and learning to live together. Technological developments are very important to be utilized in the world of education as a learning medium. The role of learning media is not only as a new innovation, but also to create interesting classroom conditions and make learning meaningful. The function of learning media for students is to make it easier to receive and understand lesson material so as to achieve planned competency goals. A website or also called the Web is information created by an author in the form of a collection pages accessed using internet data or WiFi network. A website is a collection of pages in the form of a site summarized in a domain or subdomain located in

a wide location on the internet (Supriyono et al, 2023). We found many websites on Google that can be accessed anywhere. The era of globalization has encouraged the development of information that has various capacities and forms, so that the use of websites is really needed by various writers by taking into account the goals and visitors as considerations in creating websites. Website types are divided into 2, namely static and dynamic. A static website is the creation of a page that can only be edited manually using HTML (Hyper Text Markup Language) format. Dynamic websites are specifically designed to be updated automatically, regularly and easily (Fathoni & Zainiyati, 2020). The use of a website can be for information regarding the profile of an institution/institution, news, commercial interests, and blogs. Validation in website development is very important because it can ensure that the website created meets ideal standards and requirements, ensures product suitability, reduces costs, increases usability and visual appeal and improves product quality (Romani & Prihatmojo, 2021).

The application of innovative and creative learning media according to the subject matter will stimulate students' thoughts, attention, feelings, skills and cognitive abilities (Nurfadhillah et al., 2021). Various learning media that can be used to support student learning such as radio, internet, television, articles, books, magazines, newspapers, etc. (Rahman et al., 2020). The use of learning media is closely related to the teaching and learning process which requires practice and critical reasoning, such as science learning. Science learning is learning that connects all fields of science study, namely physics, chemistry and biology, which aims to develop scientific process abilities, encourage understanding of concepts and develop a positive attitude towards science (Januarysman & Ghufron, 2016). Science learning is a teaching and learning process that aims to involve students both physically and spiritually. Increasing student competence in the science learning process can be done by providing direct experience such as exploring and understanding the natural environment scientifically or by adapting it to theories that have been proven and tested for truth (Januarysman & Ghufron, 2016). The aims and problems of science are holistic so the delivery of the material must be comprehensive. The scope of science does not just stand alone, because there is an integrated science that has connections or relationships between concepts from the fields of biology, chemistry, physics, astronomy, earth sciences, religion and social sciences that are connected to everyday life (Prasetyowati, 2014).

Most teachers in the science learning process use pictures and YouTube videos which can cause boredom so that students are less interested because they only memorize, calculate and do practical work. The facts in the field are that there are many problems related to limited media and learning resources which are not in line with the increasingly advanced development of digital-based technology. The development of learning media is one way to improve the quality of learning which aims to ensure that students can receive the material well and create a planned and interesting learning atmosphere. Learning is not just about delivering material but also providing space for students to learn (Asrianti et al., 2021). Based on explanation, how is the development of blog website-based learning media based on the structure and layers of the earth? So the research tries to provide innovation in developing the use of learning media in the form of blog websites for science learning.

METHODS

Development of learning media on the structure and layers of the earth (WeBSriBu) based on blog websites using the Research and Development (RnD) method. Research uses the Borg and Gall development model which is modified into 10 stages, namely: (1) preliminary research, (2) information gathering, (3) planning, (4) initial product development, (5) validation, (6) initial product revision, (7) product testing, (8) product revision, (9) trial use, (10) dissemination/mass production. However, research only used 5 stages, starting from preliminary research to validation. Research uses qualitative descriptive analysis techniques.

Steps that must be taken are first, conducting research through interviews and observation. Second, collect information about the learning media used, so it is necessary to develop media in the form of WeBSriBu. Third, plan a schedule regarding the creation of WeBSriBu media. Fourth, create a product in the form of WeBSriBu learning media. Fifth, carry out validation with 2 validators regarding aspects of material experts, design experts, appearance experts, material suitability experts with the curriculum and question experts. Sixth, process the data in the form of numerical values with the most correct answer being 4 and the wrong answer being 1, then calculate score, and make final score by calculating it in percent form using the following formula:

$$\text{Mark} = \frac{\text{Number of score obtained}}{\text{Maximum number of scores}} \times 100\%$$

Data collection took the form of validation results in the form of percentages of the 5 expert aspects which were then categorized as very unfeasible, unfeasible, sufficient, feasible and very feasible based on table 1. The research was conducted from September to October 2023, specifically class VII in one of one MTs in Ponorogo. Subject determination is based on the consideration that the material taught is in accordance with the needs analysis and lessons in semester II. The data that has been collected is combined into one which will later become a picture of the feasibility and effectiveness of blog website-based learning media in terms of appearance, design, material content, suitability of the material to the curriculum as well as question used as an evaluation in improving students' understanding after using media-based learning products blog website.

Table 1. Eligibility Interval Criteria

No.	Interval	Categories
1.	81-100 %	Very Feasible
2.	61-80 %	Feasible
3.	41-60 %	Sufficient
4.	21-40 %	Unfeasible
5.	0-20 %	Very Unfeasible

Source: Andis Meianti (2018)

RESULTS AND DISCUSSION

Based on the results of data processing obtained from research at MTs Ponorogo Regency, it is obtained in table 2:

Table 2. Validation Value Data

Aspect	Score (%)	Categories
Design Experts	87.5	Very Feasible
Appearance Experts	84.38	Very Feasible
Material Experts	78.13	Feasible
Material Suitability Experts with the Curriculum	75	Feasible
Question Experts	71.88	Feasible

Based on table 2, the validation data obtained by design experts was 87.5% and appearance experts were 84.38%, so it is classified as very feasible. The very feasible category is in the 81-100% interval. Material experts have a score of 78.13%, material suitability experts with the curriculum 75%, and question experts 71.88% so they are classified as feasible. The feasible category is in the range of 61-80%. Based on the five percent data in table 2, the highest data obtained are design experts, appearance experts and material experts. Meanwhile, the lowest data are experts in suitability of material to the curriculum and subject matter experts. The validator provides advice on the five aspects (experts) that are validated as in table 3:

Table 3. Criticism and Suggestions from Validators

Aspect	Criticism and Suggestions
Material Experts	1. The content of the material presented on the website is good. However, it needs to be further improved regarding the explanation of the material presented and the points of material that will be discussed on the website must be maintained. 2. Before entering the media, students should be given socialization regarding the media so that when they practice, they can operate the blog website media correctly. 3. Learning methods and learning resources must be more clearly explained and the sources used must be able to attract students' attention and be innovative. 4. Clarify the flow of the presentation of the material, the purpose of creating the website regarding whether it is feasible in the further development process, and the contents of the material are explained in more detail, concisely and clearly.
Material Suitability Experts with the Curriculum	1. When creating a website, the material presented must be clear and in accordance with the curriculum used and learning objectives. 2. The clarity of the explanation of cp and tp must be further improved.
Question Experts	1. The results of the question validation are good, but you need to pay attention in the process of making the questions that will be given to students must be in accordance with the grid of the material that will be tested. 2. Pay more attention to the level of competency you want to achieve (C1 – C6).
Design Experts	1. Each page has a home icon to make it easier for users to return the menu to home. 2. Try to make 1 page on the main (first) website so that you don't need to scroll up and down.
Appearance Experts	1. The proportions of the icon images are not the same, the size should be adjusted. 2. The written information on each icon is uneven, you should tidy up the placement. 3. The clarity of the icon images for each menu is less attractive because the sizes are not the same.

Design is a form of need, both physical and spiritual, which is explained based on

experience, knowledge and expertise that reflects appreciation and adaptation to the surrounding environment related to the purpose of creation, composition, form and value. Design is important because makes easier for humans to design and create objects, structures, systems and components that are useful for users, thus ensuring that the information presented on the creator's website can be easily found, which will provide a good user experience for visitors (Garett, et al. 2016). Design experts have the highest category in WebSRibu development because they have an important role in giving a good first impression to website visitors. Good design quality can reflect the professionalism and credibility of a website and provide an interesting experience for users where researchers present interesting topic pages combined with images that match the discussion material (Fajarianingtyas & Hidayat, 2023). The importance of design validation in the WeBSriBu development process to make learning more effective and efficient, easy, and develop the creativity of students and teachers (Kartikasari et al, 2016). The results of design validation are carried out to ensure that the resulting product meets user needs and regulatory requirements. Another reason for design validation is to increase product accuracy, reduce the risk of product errors, increase customer satisfaction, improve the quality of a product in accordance with established standards, increase product efficiency (Lestari et al., 2020). The indicators in website design include layout, font selection, color scheme, navigation, menu button design, graphics and user experience (Romani & Prihatmojo, 2021). WeBSriBu media has met the specified indicator standards so it is very suitable for further development.

Appearance is the shape or form of a product that has values of beauty, attractiveness and quality. The appearance based on validation results is included in the high category because WebSRiBu in terms of appearance meets the criteria, is attractive, high quality, easy to understand and innovative so that students as users do not get bored with the appearance of the material that students will study and increase students' enthusiasm for learning (Dharma et al., 2021). An attractive website appearance can give a good first impression to website visitors so that it can increase visitor trust and strengthen the image of the developer's blog. In the WebSRiBu product, there are several components in the display such as the suitability of the fonts used, the suitability of the images used, video and other audio which can support the content of the WebSRiBu display for students (Trisna et al., 2021). The appearance of WebSRiBu which is easy to access anytime and anywhere, practical and interactive is an additional point that WebSRiBu media is worthy of further development (Purmadi & Surjono, 2016). The importance of appearance that must be considered in developing WebSRiBu is to increase the usability of certain websites or applications, making it easier for everyone to apply WebSRiBu, including people with disabilities (Ramadannisa & Hartina, 2021). The impact of the appearance presented by researchers in website development greatly influences students' interest in learning because students in learning usually get bored quickly if they are given a monotonous learning model (Ramadhani & Rahayu, 2022).

Material is a form of teaching material used by educators as a tool in conveying knowledge in the learning process. The material is included in the high category because it meets each indicator on the validation sheet. The material presented by researchers is very complex, clear and complete so it really helps students in the learning process so as not to get bored and become more interested, especially in the structure and layers of the earth (Sobron & Meidawati, 2019). The material presented on WebSRiBu is in accordance with students' needs, both in terms of appropriateness of content, appropriateness of presentation, language used, usage, learning methods and sources used. It is hoped that students will have critical and innovative thinking attitudes so that they can help students solve problems and help students understand the material. (Novianto et al., 2018). The material presented on the blog website is material that is accurate, relevant, and easy for users to understand and is in accordance with the website's objectives and user needs (Mangelep, 2017). Paying attention to good aspects of the

material, students will be more interested and involved in using the website thereby increasing students' interest in learning about the structure and layers of the earth (Putri & Damayanti, 2019). Based on the facts in the field, it needs to be further improved regarding the explanation of the material presented and the material points that will be discussed on the website must be maintained, clarified regarding the flow of material presentation, the purpose of making the relevant website whether it is suitable or not in the process of further development (Warsito et al., 2014). Through learning activities carried out systematically, it is hoped that learning objectives can be achieved and the learning process will run conducively (Dimas Yusuf Septian Putra & Abidin, 2020). The student teaching and learning process can run well and students have a lot of knowledge related to the material being studied, thereby fostering a high level of enjoyment and enthusiasm for learning (Pamuraja et al., 2022). Presenting interesting material is very important in the learning process because it can improve the quality of learning, increase students' motivation and interest in learning, increase learning efficiency, and improve students' learning experience so that students can really understand the lesson material presented by the teacher (Shabiralyani et al., 2015).

Conformity is the process of decomposing an object to determine the level of suitability or accuracy (Huda, 2014). Conformity of material with the curriculum, namely the process of analyzing the content, depth and breadth of the material which has a level of suitability for the 2013 curriculum. Conformity of the material with the curriculum is important because the material is a tool to provide understanding and achievement of competence to students, both cognitive and psychomotor. in accordance with learning objectives, KI, and KD (Rianawaty, 2010). The suitability of the material to the curriculum is low due to the presentation of complicated material that is in accordance with KD and the depth of the material is related to the level of competency of students (Ramda, 2017). The impact of low suitability of material with the curriculum is that students will find it difficult to understand, which can hinder the development of thinking and behavior (Huda, 2014). If the suitability of the material with the 2013 curriculum is high, it will have a positive impact, namely that students can gain understanding based on the competency of the learning objectives that have been set. The way to increase the suitability of the material to the curriculum is to pay attention to the content, depth and breadth of the material by linking real (concrete) issues or problems in the environment in accordance with the KI and KD of a subject matter so that students can more easily understand and develop critical thinking (O 'Keeffe, 2013).

Question of evaluation in website development is a systematic and continuous process to determine the quality of something. In the context of website development, evaluation questions can be used to measure students' understanding of material that has been studied by students (Saputra & Hakim, 2022). Based on the validation results, the evaluation questions are included in the low category because students pay less attention to the material presented by the teacher and it could be that the teacher's method of delivery to students is not appropriate (Dalman & Junaidi, 2022). The questions used in student evaluation should be dominated by medium category questions that students can understand, while difficult questions are used for selection purposes (Worabay, 2022). It is important for teachers to ensure that test questions are well structured, cover appropriate material, and have a balanced level of difficulty (Karwati, 2014). The impact of low validation results varies greatly depending on the context. Some cases of low validation results can cause poor student performance in learning because they are pessimistic first (Idrus, 2019). The impact of high quality questions will have an impact on students, such as improving and deepening their ability to understand the material so that it is easy to apply it in everyday life. The impact on educators is that it is easy to evaluate the learning process in higher phases. Efforts to improve the quality of the questions so that they are high include increasing the difficulty or difficulty of the question items, distinguishing power, and the subject matter of the questions (Fitrianawati. 2017).

CONCLUSION

Based on the results of the research and discussion, it can be concluded that MTsN Ponorogo Regency obtained the highest validation data, namely design experts (87.5%), display experts (84.38%), and material experts (78.13%). Meanwhile, the lowest validation data were experts in suitability of material to the curriculum (75%) and question experts (71.88%).

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