

ANALYSIS OF THE ADVANTAGES AND DISADVANTAGES OF 2D MODELS\MOCKUPS IN LEARNING MEDIA

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Abstract

Learning media plays an important role in helping students understand the material more easily. One of the media frequently used in learning activities is a two-dimensional (2D) model or mockup. A 2D model/mockup is a visual medium that displays objects in the form of flat images, helping students understand concepts more clearly. This article aims to explain the meaning of 2D models/mockups in learning media and analyze their advantages and disadvantages in the learning process. The method used in writing this article is a literature study by reviewing various book and journal sources related to learning media. The results of the study indicate that 2D models/mockups have several advantages, such as being easy to make, relatively inexpensive, and able to help students understand the material visually and increase learning interest. However, 2D models/mockups also have several disadvantages, namely they cannot display objects realistically like three-dimensional media, the information conveyed is limited, and they are less interactive compared to digital-based learning media. Therefore, the use of 2D models/mockups should be combined with other learning media to make the learning process more effective and interesting for students.

Keywords: learning media, two-dimensional (2D) model, 2D mockup, visual learning, learning procees.

NTRODUCTION

Learning media is a crucial component in the teaching and learning process. They are used as a tool to assist teachers in delivering lesson material, making it easier for students to understand. Appropriate use of media can increase student interest, help clarify concepts, and make the learning process more engaging and effective. In learning activities, teachers often use various types of media, one of which is visual media. Visual media can take the form of images, diagrams, maps, posters, or two-dimensional (2D) models. A 2D model or mockup is a medium that displays objects in two dimensions, having length and width but no depth. This medium is often used to illustrate a concept or object simply, making it easier for students to

understand the lesson material. The use of 2D models/mockups in learning has several advantages. These media are relatively easy for teachers to create, do not require a large cost, and can help students understand the material visually. Furthermore, they can attract students' attention, thus increasing their motivation to learn. However, 2D models/mockups also have several limitations. They cannot display objects as realistically as three-dimensional media and have a limited level of interactivity. Therefore, it is necessary to analyze the advantages and disadvantages of 2D models/mockups as learning media to ensure their use is more effective in the teaching and learning process.

DISCUSSION

A. Definition of Learning Media

Learning media refer to anything that can be used to deliver messages or information during the learning process. These media help stimulate students' attention, interest, thinking, and feelings while participating in learning activities. According to Arsyad (2017), learning media are tools used to present learning materials so that students can understand the content more easily. The use of learning media can also make the teaching and learning process more effective and efficient. In addition, Sadiman (2014) explains that learning media are various forms of tools used to convey messages from learning sources to students, which can stimulate their attention, thoughts, feelings, and interest in the learning process.

B. Definition of 2D Model/Mockup

A 2D model or mockup is one type of visual learning media that presents objects in two dimensions. This type of media only has length and width without depth. Examples of 2D models include pictures, maps, diagrams, posters, and illustrations.

A 2D model or mockup is commonly used to provide a simple representation of an object or concept so that students can understand the material more easily. The use of this media is helpful when explaining abstract topics because information is presented in a clear visual form. In the learning process, 2D models or mockups function as supporting tools that help students grasp the material more effectively since the information is displayed visually and in a simplified way. Examples include map images, diagrams of human body organs, plant illustrations, and diagrams showing certain processes.

Characteristics of 2D Models/Mockups

1. Have two dimensions (length and width).
2. Usually in the form of drawings, sketches, charts, or illustrations.
3. Do not have spatial form or volume like 3D models.
4. Used to have simplify and clarify information.
5. Easy to create and relatively inexpensive to use.

Examples of 2D Models/Mockups in Learning

- Maps in social studies (IPS) lessons.
- Diagrams of human body organs in science lessons.
- Organizational structure charts.
- Posters or illustrations showing the process of photosynthesis.

C. The Role of Visual Media in Learning

Visual media plays an important role in the learning process. It helps students understand information through pictures or illustrations so that the concepts presented become clearer. In addition, visual media can also increase students' interest and motivation in learning because the learning activities become more engaging.

By using visual media such as 2D models or mockups, teachers can deliver the material more effectively since students are able to see a representation of the topic being studied. Visual media refers to learning media that present information through visual elements such as pictures, maps, diagrams, graphs, posters, and two-dimensional (2D) models. These media assist teachers in explaining the material so that it can be understood more easily by students.

1. Facilitating Understanding of the Material

Visual media help students understand difficult or abstract material by presenting it in a more concrete and clear form. Through images or illustrations, students can grasp the concepts explained by the teacher more easily.

2. Increasing Students' Interest and Motivation

The use of visual media makes the learning process more interesting and less monotonous. Pictures, colors, and visual displays can attract students' attention and help them stay focused during the lesson.

3. Helping Students Remember Information

Information presented visually is usually easier for students to remember than information delivered only through verbal explanations. Students can associate the material with the images they see.

4. Clarifying the Delivery of Information

Visual media enable teachers to present information more clearly and systematically, for example through flowcharts, diagrams, or concept maps.

5. Overcoming Limitations of Time and Place

Some objects or events are difficult to observe directly. Through visual media such as pictures or maps, teachers can present these objects without having to bring them into the classroom.

6. Encouraging Student Participation

Visual media can encourage students to observe, ask questions, and participate in discussions, making the learning process more active.

D. Advantages of 2D Models/Mockups in Learning

A 2D model or mockup is a type of learning media presented in two-dimensional form, such as pictures, diagrams, charts, maps, and posters. The use of 2D models in the learning process offers several advantages that can support more effective teaching and learning activities.

1. Easy to Create and Use

2D models or mockups are relatively easy to prepare by teachers or students because they only require simple materials such as paper, printed images, or drawings. In addition, they can be used without the need for special equipment.

2. Low Production Cost

Compared with three-dimensional (3D) models, 2D models are more economical. The materials needed are easy to obtain and generally inexpensive.

3. Facilitating Understanding of the Material

2D models can simplify complex ideas so that students are able to understand the material more easily. This can be done through the use of images, charts, or illustrations that represent the concept being studied.

4. Easy to Carry and Store

2D media are usually lightweight and practical. They can be easily carried, moved, and stored without requiring large storage space.

5. Attracting Students' Attention

2D models that include colors, pictures, and interesting illustrations can attract students' attention and increase their interest during the learning process.

6.Helping Teachers Explain the Material

Through the use of 2D models, teachers can explain the material more clearly and in a structured way. This helps students understand the relationships between concepts more effectively.

Overall, 2D models or mockups have many advantages in learning. They are easy to create, inexpensive, practical to use, and effective in helping students understand the material more clearly. For these reasons, they are often used as supporting media in classroom learning activities.

E. Disadvantages of 2D Models/Mockups in Learning

A 2D model or mockup is a learning medium that only has two dimensions, namely length and width. Although it offers several benefits in the learning process, the use of 2D models also has certain limitations.

1.Limited Representation of Real Objects

A 2D model cannot fully display the real or three-dimensional form of an object. As a result, students may sometimes find it difficult to imagine the actual shape of the object being studied.

2.Limited Information Display

2D media generally present information in the form of simple images or illustrations. Because of this, not all details of an object or concept can be explained completely.

3.LessInteractive

Compared with other learning media such as 3D models or digital media, 2D models usually provide less interactive learning experiences for students.

4.LimitedVisualAppeal

If the design of a 2D model is not attractive, for example if it lacks color or clear images, it may fail to capture students' attention and can make the learning process feel monotonous.

Overall, 2D models or mockups have certain limitations in learning because they cannot present objects in a real form, tend to be less interactive, and provide limited information. Therefore, the use of 2D models should ideally be combined with other teaching methods or media so that the learning process becomes more effective and engaging.

CONCLUSION

A 2D model or mockup is one type of visual learning media that is widely used in the teaching and learning process. This media presents an object or concept in a two-

dimensional form that only has length and width, such as pictures, diagrams, maps, charts, or illustrations. The use of 2D models in learning plays an important role because it helps teachers present the material in a clearer, simpler, and more understandable way for students. Through visual representations such as images or illustrations, students can more easily understand concepts that were previously abstract and make them more concrete.

In addition, 2D models or mockups have several advantages. They are easy to create, relatively inexpensive, and practical to use in various learning situations. These media are also easy to carry and store, allowing teachers to use them whenever needed during the learning process. When designed with clear images and attractive colors, 2D models can capture students' attention and increase their interest in learning, making the learning process more effective and enjoyable.

However, 2D models or mockups also have some limitations. This type of media cannot present objects in a realistic form like three-dimensional (3D) models, so students may sometimes find it difficult to imagine the actual shape of an object. In addition, 2D models tend to be less interactive because students only observe images without being able to view the object from different perspectives or explore it directly. The information presented in 2D models can also be limited, meaning that not all details of a concept can always be shown completely. Therefore, in classroom practice, 2D models or mockups should not be used as the only learning medium. Instead, they should be combined with other learning media such as 3D models, audiovisual materials, or active learning methods. By integrating different media and strategies, the learning process can become more effective, engaging, and supportive in helping students understand the material more deeply. Overall, 2D models or mockups remain useful learning media when they are used appropriately and adjusted to the learning objectives as well as the characteristics of the students.

SUGGESTIONS

Based on the discussion about the use of 2D models or mockups in learning, several suggestions can be proposed so that the use of this media can be more effective and optimal in the teaching and learning process.

First, teachers should use 2D models or mockups in a creative and attractive way, for example by adding colors, clear images, and simple but informative designs. This approach can help capture students' attention and make it easier for them to understand the material being presented.

Second, the use of 2D models or mockups should be combined with active learning methods such as discussions, question-and-answer sessions, or group work. In this way, students do not only observe the media passively but can also take an active role in the learning activities.

Third, teachers are encouraged to combine 2D models with other learning media, such as three-dimensional (3D) models, learning videos, or digital media. This combination can help overcome the limitations of 2D models in presenting objects realistically and can provide a richer learning experience for students.

Fourth, when designing or preparing 2D models or mockups, teachers need to adjust the media to the lesson material and the developmental level of the students. The media used should be easy to understand, relevant to the topic, and appropriate for the learning objectives.

Finally, schools are expected to support the use of learning media, including 2D models or mockups, by providing adequate facilities and resources. Such support can assist teachers in creating a more effective, engaging, and meaningful learning environment for students.

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