# What Multimedia Can Teachers Use in Learning?

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**ABSTRACT**
Learning media is everything that can be used to transmit messages from teachers to students so that it can stimulate thoughts, feelings, attention, and student interests in the teaching and learning process. The learning media are referring to various tools, materials that can be used to assist in the delivery of learning materials. The media is both self-made and rich by others. Media is a tool that teachers use when teaching. The existence of media in teaching is very important so that media becomes part of the learning component.

**Keywords**: learning media, multimedia, learning technology

## 1. INTRODUCTION

A teacher is required to be responsible for his students, in terms of student achievement, health, safety and welfare. In the learning process in the classroom, teachers are prohibited from engaging in violence / physical contact with their students, minimizing discrimination in class, seeking intensive guidance for students with special needs. The toughest challenges faced by schools in Indonesia are the limited number of "ideal" teachers and the growing number of students with various characteristics, especially in schools that are considered favorites by the community. The serious consequence that arises from this is that there is often an overloaded workload on the teacher concerned so that the teacher's function as educator, facilitator, observer, diagnose, counselor and leader in the classroom does not run optimally.

The development of science and technology is increasing rapidly. 21st-century learning demands encourage the use of technology in the learning process. Teachers are required to be able to use technology so that they can keep up with the times. Teachers can at least use cheap and efficient tools, although simple, they can still achieve the expected learning objectives [1], [2]. In addition to being able to use the available tools, teachers are also required to be able to develop skills in making learning media that will be used in the media is not yet available in school. For this reason, the teacher must have sufficient knowledge and understanding of learning media.

Even the younger generation, especially the millennial generation in an era like this, all activities carried out are always related to technology [3], [4], especially gadgets. Millennials are rarely able to operate cellphones. So that the teacher must also be able to balance what they like so that they can like what the teacher teaches. Therefore, nowadays teachers in learning are strongly discouraged from using the lecture method and only using learning media for whiteboards and markers. Teachers can now use various media in combination so that learning is more interesting and less boring. It is expected that by using more than one media or multimedia learning objectives can be achieved easily.

## 2. LEARNING MEDIA

Media is anything that can be used to transmit messages from the sender to the recipient of the message so that it can stimulate students' thoughts, feelings, attention, and interests in such a way that the learning process occurs. The relation between learning resources and learning media are: (1) learning media is part of learning resources; (2) learning resources can be in the form of messages, people, tools, materials, techniques, and the environment; (3) the combination of materials (software) and tools (hardware) is called learning media; and (4) learning media: anything that can be used to stimulate the students' thoughts, feelings, attention, and willingness to encourage learning activities.

The contribution of the media in learning is: (1) the delivery of learning messages can be more standardized; (2) learning can be more interesting; (3) learning becomes more interactive by applying learning theory; (4) the implementation time of learning can be shortened; (5) the quality of learning can be improved; (6) the learning process can take place whenever and wherever needed; (7) students' positive attitudes towards the learning material and process can be improved; and (8) the role of the teacher changes in a positive direction.

The role of the media in learning is: (1) to make abstract concepts concrete; (2) highlight certain parts that are considered important; (3) provide a substitute for direct experience; (4) close objects that are difficult or dangerous to approach; (5) provide observational experience; (6)


 

presents color differences visually; and (7) presents information that requires motion.

The media has the ability: (1) to make abstract concepts into concrete; (2) bringing a dangerous object to be harmless; (3) showing objects that are too big to be small; (4) displays objects that cannot be observed with the naked eye; (5) observing movements that are too fast; (6) generate motivation; (7) overcoming space and time; (8) overcoming long distance; and (9) allows uniformity of observation and perception.

## 3. DEFINITION OF MULTIMEDIA

Multimedia comes from the words 'multi' and 'media'. Multi means many, and media means a place, means, or tools used to convey information. So, based on the word 'multimedia' it can be formulated as a container or unification of several media which is then defined as the elements of multimedia formation. These elements include text, images, sound, animation, and video.

Multimedia can be categorized into 2 types, namely linear multimedia and interactive multimedia. Linear multimedia is multimedia that is not equipped with any controller that can be operated by the user. Multimedia is running sequential (sequential/straight), for example, TV and films. Meanwhile, interactive multimedia is multimedia that is equipped with a control device (or tools in the form of a computer, mouse, keyboard, etc.) which can be operated by the user, so that the user can choose what he wants for the next process. Examples such as game applications. Interactive multimedia combines and synergizes all media consisting of text, graphics, audio, and interactivity (design).

Multimedia learning is learning that is expected to be able to empower all brain activities as long as students carry out learning activities [5], [6], because basically, students ranging from elementary school to college need a consistent stimulus in their brain. Along with the times and the era of globalization which is marked by the rapid use of products and the use of information technology, the conception of learning has shifted to an effort to embody modern learning. Computer systems can convey learning directly to students by interacting with subjects programmed into the system, this is called computer-assisted teaching. The development of computer technology brought many changes to an application program that should have been designed specially to make this technology able to manipulate the real situation [3], [7]. The emphasis lies in continuous efforts to maximize teaching and learning activities as a cognitive interaction between students, subject matter, and instructors.

The characteristics of multimedia learning are: (1) containing representative material content in visual, audio, and audio-visual forms; (2) various communication media in their use; (3) has a strong language, color and object resolution language; (4) various types of learning; (5) learning and reinforcement responses vary; (6) developing self-evaluation principles in measuring the learning process and outcomes; (7) can be used classically or individually; and (8) can be used offline or online.

## 4. TYPES OF MULTIMEDIA PRESENTATION APPLICATIONS

### *4.1 Microsoft PowerPoint*

Microsoft PowerPoint or Microsoft Office PowerPoint is a computer program for presentations developed by Microsoft in a package of Microsoft Office applications, in addition to Microsoft Word, Microsoft Excel, Microsoft Access, and several other programs. PowerPoint runs on a PC based on the Microsoft Windows operating system and also on the Apple Macintosh that uses the Apple Mac OS operating system, although initially, this application runs on the Xenix operating system. Starting with the 2003 version of the Microsoft Office System, Microsoft changed its name from the previous Microsoft PowerPoint to Microsoft Office PowerPoint.

### *4.2 Open Office Impress*

Sun Microsystems' OpenOffice.org Impress is software for creating effective multimedia presentations. Presentations in this application will appear with 2D and 3D clip art, animation, and drawing equipment. OpenOffice.org Impress has a comprehensive range of image diagramming tools that are easy to create. The Animation and Effects facilities bring the presentation to life. Fontworks provides attractive fonts in 2D and 3D formats for text images.

### *4.3 Presentation X3*

Presentation X3 from Corel Corporation has the full range of features needed to produce a proposed project, interactive reports and demonstrations, multimedia presentations, and more. Presentation X3 can export presentation files to PDF format.

### *4.4 Star Office.org Impress*

Sun Microsystems' StarOffice Impress is a software tool for creating effective multimedia presentations featuring 2D and 3D clip art, animation, and a full suite of graphics. This software was launched to show animations and effects that bring a presentation to life more, is equipped with various 2D and 3D fonts, and 3D images will feel more alive. Besides, StarOffice Impress is an alternative for making presentations because this software uses the ability to create Flash.

### *4.5 Presenter*

Presenter is used to create and present presentations. With several facilities offered, KPresenter can be aligned with Microsoft PowerPoint. For your information, KDE (K Desktop Environment) developers always use KPresenter when they have to give presentations about KDE. Because it is designed to be KDE's PowerPoint, there are various similarities between KPresenter and PowerPoint. This can

be an advantage, especially to attract PowerPoint users who want to switch to the Linux environment. By using KParts, various kinds of text, images, charts, and multimedia files, can enrich the presentation material that was worked on with KPresenter. One of the interesting features of Presenter is that it generates slideshows in HTML format. Once a presentation has finished, in an instant, a suitable HTML version can be generated for upload to the website.

## 5. MULTIMEDIA ADVANTAGES AND LACKS

The advantage of multimedia is that it attracts the senses and attracts interest because it is a combination of sight, sound, and movement. The computer research and publishing institute, namely the Computer Technology Research (CTR), states that people are only able to remember 20% of what they see and 50% of what they hear. But people can remember 50% of what was seen and heard and 80% of what was seen, heard, and done at once. So multimedia is very effective [8], so that multimedia becomes a powerful tool for teaching and education as well as to gain a competitive advantage in companies. From various information media, multimedia has its advantages that cannot be replaced by other media presentations.

The advantages of multimedia learning are: (1) increasing the flow of ideas and information; (2) is a rich way of communicating something; (3) encourage user participation, engagement, and exploration; (4) stimulates the five senses; and (5) provide ease of use, especially for ordinary users. The disadvantages of multimedia learning are: (1) poor design will cause confusion and boredom or messages that are not well conveyed; (2) constraints for people with limited conditions such as physical smallpox; and (3) guidance on adequate computer specifications.

## 6. TECHNICAL PROCEDURE OF MULTIMEDIA LEARNING DEVELOPMENT

### *6.1 Text*

Text is the media most commonly used in presenting information and data. Text can be presented in various sizes and fonts. Unformatted text is text that is without any formatting. An example of plain text is when typing using a standard text editor such as notepad (.txt). Plain text is a type of text that does not contain information, such as font information, inline images, and does not contain links.

Meanwhile, formatted text is a series of characters that have a specific format, such as typing with WordPad (.rtf). WordPad text is formatted in a way that uses certain rules, such as tags or marks, so that it can be bold, underlined, italicized, colored, or the selected type of font. Additionally, a file with the format (.doc) is another example of formatted text, where the choice of formatting options for text is much more than that provided by the file format (.rtf).

Hypertext, in general, is a collection of text that has a link (hyperlink) to another document. Hyperlinks serve to facilitate organizing the publication of documents that are increasing over time, an example of a hyperlink is usually writing text using notepad and saved in (.html) format.

### *6.2 Picture*

Pictures or graphics are still images, for example photos and pictures. Images are a very good means of presenting information, because humans are very vision-oriented (visual-oriented). Ordinary objects presented in the form of images, do not have a direct relationship with time. [4], [9]. Image attributes depend on the image bit depth and image resolution. For example, in a comparison of the output differences between web, printer loser and image tester. This is influenced by colors, such as RGB, B / W, and CMYK.

Bitmap-based images are images that are captured or generated through media that have a certain resolution, where each pixel is defined separately. Meanwhile, vector-based images are images that are processed and generated using a computer that are used to draw primitive graphics (such as boxes, lines, ellipses, circles) and commonly use their attributes with the help of tools. Vector animation is used to make objects move by changing the start, direction, size of the object, and adjusting the object segment [10], [11].

### 6.3 *Animations*

Animation can be defined as an object that moves dynamically and is not static. Objects can be in the form of text or other forms. There are many kinds of motion animations, and of course, they cannot be counted [12], [13]. The animation is the process of creating a motion effect or changing shape that occurs over time. Animation can be in the form of moving an object from one place to another, changing its color, or changing its shape. The use of motion, shape, or button action as an animation concept.

### 6.4 *Video*

Video is a technology for recording, capturing, processing, transmitting and rearranging moving images. Video commonly uses celluloid film, digital media, or electronic signals [14], [15]. And video itself is closely related to motion and sound, for example digital video and analog video.

## 7. THE RELATIONSHIP BETWEEN THE DIVERSITY OF STUDENT CHARACTERISTICS AND LEARNING

To realize educational services that are in accordance with the abilities of each student from each group in the class, it is better if a teacher uses learning strategies that are based on the diversity of learning abilities of different students. This learning strategy can be applied effectively through changes or adjustments between students' learning abilities and expectations / targets, time allocation, rewards / prizes, assignments /

jobs, and assistance provided to students from different groups, even though they are learning. in one class with the same theme and subjects.

Examples of the diversity of educational services that are tailored to student characteristics, for example mathematics learning targets for third grade elementary school students about multiplication, high function learners who understand and are able to use multiplication in story problems with analysis at the abstract thinking stage. For students whose learning ability is average (average performers) learn multiplication only up to hundreds at the semi-concrete stage, and for students who are slow learners (slow learners) recognize new multiplication up to ten with concrete stages, and for autistic children learn math up to hundreds with focuses more on the advantages of visual thinking (understanding concepts through observation with the help of images, codes, labels, symbols or films, etc.).

Likewise, the allocation of time, rewards / prizes, assignments / jobs, and assistance given is also adjusted to the stages of learning development of each of these groups. So the learning service process is not based on the same form of service, the same taste and is delivered classically, but is directed at learning that is more democratic and proportional to the expectations and learning targets of each group of students. The student learning process is not separated by groups or separated from the community, but students learn together with their peers in regular classes.

If the student learning process is adjusted to the diversity of each group, all students in the same class can follow the learning process according to their respective portions. Students who learn fast do not have to get the same subject matter and study time allocation as their peers in general (average group) or the same as their friends who are slower to learn or the same as their autistic friends.

To foster students' self-confidence in learning, it can be done by giving awards / rewards. All children need this reward to develop their self-esteem and identity. Especially for students who are slow to learn, by getting rewards at each step during the completion of their work and learning process, it makes them more confident in doing their assignments. In other words, children must be respected for what they are. They must feel safe, be able to express their opinions and be successful in their studies. This can help students enjoy learning and teachers can strengthen students' enjoyment by creating more enjoyable classes.

In their study groups, students must always be supported, so that children feel successful and enjoy learning something new. Likewise, assistance and guidance to intelligent children still needs to be provided, although not as much and as intensively as given to children with autism and other children who are slower to learn. Autistic children and those who are slow learners need guidance at every stage of their learning. So, if the strategy and atmosphere of the learning process as described above can be realized optimally, it can lead all students to achieve a pleasant learning process.

Teachers are the spearhead of successful learning. Learning is a process to turn a minus student into a plus. Effective learning cannot be separated from professional teachers. Professional teachers can manage aspects of learning effectively. Learning aspects include, students, teaching materials, learning resources and media. Effective management of learning aspects will encourage students to participate actively during the learning process, so that they are challenged by lessons discussed with friends and teachers. The teacher's responsibility in the learning process is not only as a teacher but also as an observer, diagnose, educator, facilitator, counselor and leader in the classroom.

## 8. CONCLUSION

Interactive teaching materials in preparing them to require adequate supporting knowledge and skills, especially equipment such as computers, video cameras, and photo cameras. The uses of the media are: (1) to clarify the message so that it is not too verbalize; (2) overcoming the limitations of space, time, and sensory power; (3) overcoming the passive attitude of students to become more enthusiastic; (4) making concrete abstract concepts so that they are easily understood by students; (5) carrying objects that are dangerous or difficult to find in the learning environment; (6) display objects that are too large, such as markets, temples; (7) displays objects that cannot be observed with the eye; (8) shows movement that is too fast; (9) allows students to interact directly with their environment; (10) generate motivation to learn; and (11) give the impression of individual attention to all members of the study group.

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