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Educational Media Design for Heart Attack First Aid Based on Motion Graphic at Harbour Energy

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Abstract

Heart attacks are a leading cause of death worldwide, requiring quick and accurate first aid. However, workplace education on first aid for heart attacks remains limited. This study aims to design an educational medium using motion graphics to enhance employees' understanding at Supply Base Harbour Energy Batam of first aid procedures for heart attacks. This research adopts the Multimedia Development Life Cycle (MDLC) model, which consists of six stages: concept, design, material collecting, assembly, testing, and distribution. Theories on multimedia and visual-based education support this study. The input data were obtained from observations and interviews with company supervisors as primary data, while secondary data were collected from relevant literature. A qualitative research approach with descriptive analysis was employed, and the sample consisted of employees at Supply Base Harbour Energy Batam. The results, tested using the black box testing method, indicate that the developed motion graphic effectively conveys information clearly and engagingly, assisting employees in recalling and understanding first aid procedures. This research provides an innovative solution to enhance awareness and preparedness in handling emergencies, thereby reducing the risk of fatal outcomes from heart attacks in the workplace.

Keywords— Motion Graphic, First Aid, Black Box Testing, MDLC.

INTRODUCTION

According to the World Health Organization (WHO), an estimated 17.9 million people died from cardiovascular disease in 2019, representing 32% of all global deaths. Of these, 85% were caused by heart attacks and strokes[1]. A heart attack or myocardial infarction is most often caused by a decrease or cessation of blood flow to a portion of the heart, where this leads to necrosis of the heart muscle[2]. The utilization of video-based educational media at this time is a mainstay in the delivery of information. With visual effects, it can produce interesting educational videos. Therefore, the use of video-based educational media is more effective for use in conveying information[3].

Video-based educational media is also able to combine animation elements in it and the technology that is growing rapidly is motion graphics. In general, motion graphics are media that use objects, images or video recordings and animation technology to create the illusion of motion and are usually combined with audio and color to be used in a multimedia output. Motion graphics are usually presented in a short time or about three minutes[4].

Based on the medical checkup data for the period 2024-2025, it was found that 2 workers had a high potential for heart attack and 3 workers had a risk of hypertension. This is enough to be a concern for the company so that it provides recommendations for further consultation to a specialist doctor to the person concerned. As part of a large company, of course, it has an obligation to maintain work safety during the project. Based on article 3 of Law No. 1 of 1970, the Company is obliged to provide first aid training to workers.

This is proven by the company with training provided to employees every year, especially in the case of heart attacks, besides this training is also one of the company's main programs as a form of anticipation of potential heart attacks. However, the low frequency is still considered unable to help employees to implement the results of the training to the fullest. Based on the above background, the author is encouraged to make educational media with the title "Designing Motion Graphic-based Heart Attack First Aid Educational Media at Harbour Energy". By doing this research, it is hoped that it will make it easier for employees to remember first aid when an emergency occurs.

RESEARCH METHODS

The development model used in this study adapts the Multimedia Development Life Cycle (MDLC) model by Luther Sutopo which consists of six stages, namely concept, design, material collecting, assembly, testing, and distribution[5].

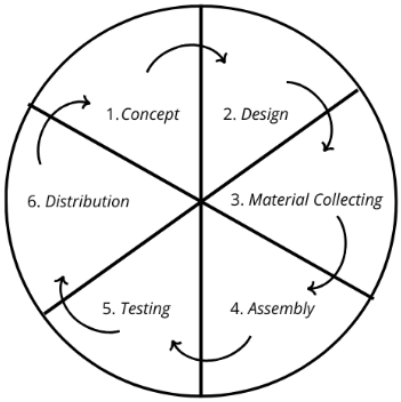


Image 1. Multimedia Development Life Cycle

1. *Concept*
   The concept stage is a stage where making a concept from the stage of making an application from starting to determine who the application user is (audience identification), the purpose of the application, the media and determining its specifications[6].
2. *Design*
   Design Stage, a storyboard design must be made to describe the design stages of each layout. Storyboards are used to determine the flow of display design and description of each form by counting all objects. A navigation structure with a hierarchical model will be used to determine the connection from one layout to another[7].
3. *Material Collecting*
   This is the process of collecting everything needed for the motion graphic video. Regarding the material to be conveyed, then multimedia files such as audio and images.
4. *Assembly*
   The materials and multimedia files that have been obtained are then assembled and arranged according to the design.
5. *Testing*
   After the result of the application is finished, it needs to be tested before it can be applied by the end user.
6. *Distribution*
   The stage of duplication and dissemination of results to users. Multimedia needs to be packaged properly according to the media of dissemination, whether through CD/DVD, download, or other media.

The MDLC method is a method that is specialized in making multimedia products and each stage in the MDLC method is flexible where it does not have to be implemented sequentially[8].

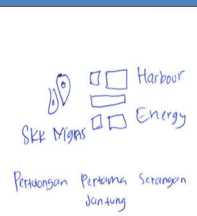
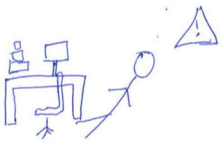
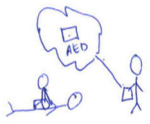
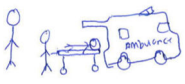
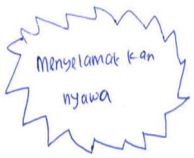
RESULTS AND DISCUSSION

The process of designing this first aid educational media uses the multimedia development life cycle design method, which the manufacturing process consists of 6 stages, namely (concept, design, material collection, assembly, testing, distribution).

1. Concept
   This stage is the stage for determining goals and objectives. The purpose of making this educational media is to be easy to remember and help understand the first aid for heart attacks. For the concept of this educational media is in the form of an animated pop up video, which contains the stages that must be done when facing emergency situations in the work environment.

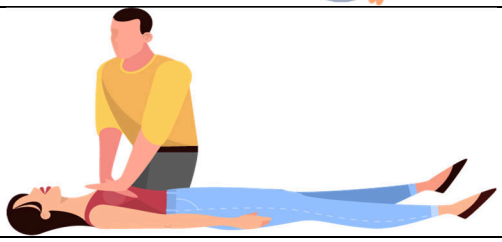
2. Design
   At the design stage of this motion graphic-based educational media, the author divides this stage into storyboards and flowcharts. The use of flowcharts is intended as a flow of the motion graphic implementation process while the use of storyboards to describe the description of each scene. Making scene sketches is done sequentially and will be used as a reference in the Adobe After Effect software implementation process which will become a Motion Graphic video.

Table 1. Storyboard

Scene 1	*Scene* 2	*Scene* 3	*Scene* 4
			
Scene 5	**Scene 6**	**Scene 7**	**Scene 8**
			

3. Material Collecting
   Material Collecting is an object or character that will be used in making this educational media motion graphic. Each object and character have a special function to describe the illustration when the incident takes place. The total number of materials is 21 and each material appears in the motion graphic video in order to support the narrative used.

Table 2. Material Collecting

No	Description	Object
1	Harbour Energy Company Logo	
2	Safety logo, to symbolize the identity of this motion video, which is related to safety	
3	Character 1 is used to describe the initial condition of the victim	
4	Character 2 is used to explain the stages of first aid	

4. Assembly
   At this assembly stage is the stage to move objects to make them look more real and interesting. This stage uses the help of after effect software and then a collection of animations are put together using Capcut software.
5. Testing
   At the testing stage, the results of the motion graphic video are tested using black box testing to find errors or deficiencies in the motion graphic video. The following are the results of video motion graphic testing conducted by the author using black box testing.

Table 3. Black Box Testing

No	Scenario Testing	Input	Expectation Result	Status (Pass/Fail)
1	Animations run in order	Palying Video	Flow Smooth	Pass
2	Audio and visual synchronization	Play with sound	Audio synchron	Pass
3	Text appears clearly	Show teks	Easy to read	Pass
4	Transition effect is smooth	Playing entire video	No bug	Pass

6. Distribution
   The tested educational media will be distributed to Harbour Energy Batam Supply Base employees via WhatsApp for easy access and interactive communication. This ensures that every employee can understand and apply the educational material in their work. Distribution is focused on Supply Base employees to keep the information relevant to the company's operational needs.

CONCLUSIONS

The design of motion graphic-based first aid educational media uses the Multimedia Development Life Cycle (MDLC) method which consists of six main stages. Testing was conducted using the black box testing method, which showed that the video had met expectations with all aspects, such as animation, audio-visual, text, and transitions, getting a "Pass" result. This educational media is expected to help Harbour Energy Supply Base Batam employees in remembering and improving their understanding of first aid training for heart attack.

SUGGESTIONS

In order to maximize the use of first aid educational media, it is recommended to adapt the information to the latest updates and available tools to be more effective. In addition, in its implementation, it is recommended to add multilingualism so that it can be well distributed to employees..

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