

INTERACTIVE COMIC AS SAFETY RIDING CAMPAIGN MEDIA BASED MULTIMEDIA TECHNOLOGY

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Abstract: The mobility requirement of society is one of the factor that causes traffic jam. By referring to the data which released by Central Bureau of Statistic (BPS), during the last 10 years (2003-2013), the ownership of vehicles had increased about $\pm 25,5\%$ annually. It means that the traffic jam is caused by increasing of motorcyclists in Indonesia and has been given impact on possibility of accidents. In fact, main factor of accidents which occurs on the highway is not caused by vehicle condition, but caused by human behaviour in driving activity. This research aims to educate the riders through "Safety Riding" campaign to reduce the number of traffic accidents on highway. The analysis of the problem is described descriptively-qualitatively by referring to the results of interview, observation, and study of literature. The design of interactive comic as education media for safety riding campaign is developed using MDLC approach (Multimedia Development Life Cycle) and SMCR communication model (Source, Message, Channel, Receiver). The outcome form this research is interactive comic media about safety riding which can be implemented on tablet PC devices. The conclusion of this research, interactive comic of "safety riding" is one of the multimedia interaction forms which potential for supporting safety riding campaign.

Keywords Comic, Interactive multimedia, safety riding

1. INTRODUCTION

Transportation is one of the supporting sectors of society in daily activities, including sector of economy, politic, and social ones. During the last 10 years (2003-2013), the ownership of vehicles had increased $\pm 25,5\%$ annually (Central Bureau of Statistics, 2013). It means that the traffic jam is caused by increasing of motorcyclists in Indonesia and has been given impact on possibility of accidents. The Global Status Report on Road Safety which is released by WHO on Republika Daily Online mentioned that Indonesia in the first rank about traffic accidents which grown up to 80%, by number of the death up to 120 people per day (Firmansyah, 2014). According to the data which obtained from the leader of Polrestabas Semarang, namely AKBP Windro Akbar, mentioned that the majority of traffic accidents are caused by motorcyclistst (Setiawan: 2013).

The riders and the traffic jam are two factors which potential cause accidents. However, the accidents which happen on highway are not caused by vehicle condition, but caused by dereliction of riders (human error). Transportasi Research Laboratory (TRL) mentioned that 95% of all accidents caused by human error, 2% of road condition, and 3% of vehicle. This means that education about safety riding for motorcyclists is main factor in reducing traffic accident victims. In 2009, there is a research about development of safety riding campaign media in the form of guidebook. The disadvantage of that media is less interactive because using one-way communication. Other media where also developed is simulation game about safety riding in 2013, but also has disadvantage that game is more concerned with aspects of fun so that the information which is conveyed look less prominent.

Comic as a medium to deliver messages, contains a set of pictures and other symbols are arranged side by side in particular sequence (McCloud, 2008). The information is shown in the form of verbal and visual, which is associated with sense of vision. On the other hand, human have the ability to receive information with the greatest percentage is through sense of eye (83%), ear (11%), nose (3,5%), touch (1,5%), and sense of taste 1% (Parmikoadi,2013). This indicate that

comic become media which potential for educating safety riding. However, as same as book, comic is one-way communication media so that there is only passive communication in understanding information about safety riding.

Multimedia is the usage of computer to create and combine text, graphics, audio, video, by using tools that allow user to interact, create, and communicate (Hofstetter, 2001). An effort to combine comic and interactive multimedia concept which allows users to interact with the content of comic is one of the proper media in conveying education about safety riding and overcome the problem above. Interactive comic has some advantages than guide book and game as campaign media earlier, that is able to convey messages concisely and clearly than book, also is more serious than game which more prioritize fun aspect.

Based on problem above, the research about interactive comic is adapted for safety riding campaign in new concept which involves the senses of sight and touch, so that the information is conveyed more leverage and preferred by audiences especially teens. The result of this research is expected able to aid related institution in educating safety riding campaign so that can raise awareness of right riding.

2. THEORETICAL BACKGROUND

2.1 Safety Riding

The procedure in driving motorcycle which safe and comfortable for safety of motorcyclists and other road user is the definition of safety riding (Boykhe, 2008). Safety riding campaign need to be done along with the increasing volume of vehicles and the number of traffic accidents which suffered by motorcyclists, especially teens. Understanding about rules in driving also needs to be socialized. The accidents that occurred in highway are almost caused by motorcyclists than the car driver. There are four factors which can explain why it can happen: 1)the lack of protection because of high acceleration on motorcycles; 2)visibility, motorcycle vulnerable can not be viewed by car driver; 3)the less experience for new riders; and 4)low level of stability especially in maneuvers and brakes (CARRS-Q, 2012).

2.2 Comic

The history of comic comes from the painting on the wall of caves at prehistoric era which displayed elements of aesthetic and replace the words. According to KBBI, comic is an illustrated story which is published on magazines, newspapers, or in form of book (Depdikbud, 2008). In addition to its function as an entertainment reading, comic also as a communication tool for learning and socializing media. Through the display in form of the story sequential, comic can be understood its meaning one by one, give more imagination for readers, and instill strong impression to be accepted in reader's mind (Danesi, 2010).



Figure 1 the example of comic strip 9th edition
Source: rautan.com

2.3 Interactive Media

Multimedia is closely related with the discussion about interactive media. Multimedia is combination of elements such as text, art, audio, images, animation, and video which are manipulated digitally, shown through computer and can be controlled interactively (Binanto, 2010). Multimedia is classified become three kinds based interaction type between its product and user, which is: 1) interactive multimedia, user can give control anything on element of multimedia which is shown anytime; 2) hyperactive multimedia, there are a lot of links which connect every element of multimedia; and 3) linear multimedia, user can not create two-way interaction and just as audience.

Interactive multimedia is a combination of digital media including electronic text, graphics, animation, and audio into a digital computerized environment structure which gives permission for the user to interact with the data as required (England & Finney, 2011). The interactive multimedia products especially which is intended as a learning media need to be based on the following characteristics: 1) discursive, allows user to think structured (step by step); 2) the user's comprehension to adjust the content of multimedia products; 3) interactive, allows the user in obtaining direct feedback related to the products; 4) reflective, multimedia product allows to support the learning process in accordance with the feedback which is done by user (Burnett, dkk., 2003).

2.4 Mobile Device

The definition of mobile device mostly refer to small-sized devices which can be inserted into the pocket where it possible to store programs and data permanently in the system memory or memory card (Vermaat, 2007). Based on definition above, mobile devices are handheld computer, Personal Digital Assistant (PDA), and smartphone. However, along with the advance of technology, mobile devices are not only limited to small-size devices, but also big size smartphone or usual named phablet. Phablet is combination of phone and tablet PC. Besides, there are other 2 in 1 devices in very big size namely netbook-tablet PC.



Figure 2 Mobile Device
Source: www.digitalgov.gov

3. THE RESEARCH METHOD

3.1 Qualitative Method

The descriptive-qualitative method is used in this research, in which data is used are verbal and visual. This research is started by identifying problem issue around safety riding and looking for the solution alternative which is used in described problem solving. The collection of primary and secondary data is used to identify the problem through interview with the traffic police, observation, and study of literature. The data which has been collected is used to analyze problem and also as a reference in designing interactive comic on mobile devices.

3.2 Design Method

The design of interactive comic using reference from the analysis result of research data. The mapping which is used in choosing media is described by SMCR communication model approach, namely Source, Message, Channel, and Receiver (Mulyana, 2007). The adaptation of this communication method is used to clarify and choose who will be given socialization about safety riding, messages to be conveyed, and what channel will be used (messages can be convey in form of what?). Besides using SMCR communication model, this design activity is also use Multimedia Development Life Cycle (MDLC) by Luther-Sutopo.

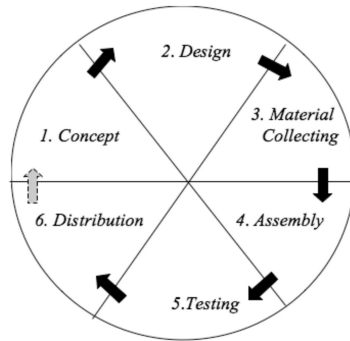


Figure 3 MDLC Method

Source: Iwan Binanto

4. RESULT AND DISCUSSION

4.1 Content Mapping

Based on the analysis of verbal and visual data, it is obtained subtheme about kinds of safety riding violation are often carried. In order to illustrate the concept of the comic, content mapping is required to describe more detail through SMCR communication model.

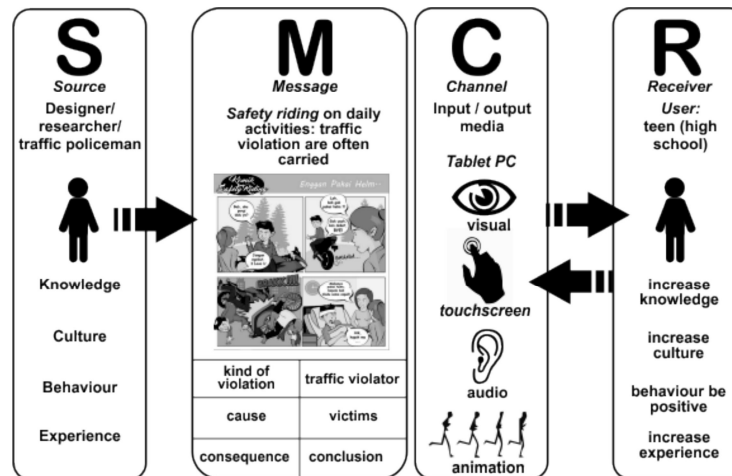


Figure 4 content mapping of interactive media "Safety Riding"

Source: Personal Documentation

The role of Source is filled by designer, researcher, or traffic policeman. Designer and researcher are only contribute in developing interactive comic. Source is expected able to give or change knowledge, culture, behaviour, and experience. Messages contain of daily safety riding violations are often carried include: kind of violation, cause, consequence, traffic violator, victims, and conclusion. Channel on tablet PC device has input and output: visual, touch, audio, and animation.

While the Receiver is the students of high school which expected can change or increase knowledge, culture, behaviour, and experience about safety riding so that can be implemented.

4.2 MDLC Method Mapping

The design of interactive comic “Safety Riding” use MDLC method which briefly can be describe as follows:

Table 1 MDLC method mapping for interactive comic “Safety Riding”

Phases	Explanation
Concept	Idea: the concept in designing interactive comic refers to the problem and the results of interview with the traffic policeman who have the education program about safety riding. The title of interactive comic is defined as “Daily Safety Riding”. The contents are kinds of traffic violation which are often carried.
Design	Devices: tablet PC is chosen in order to users can read interactive comic more comfort with big size screen. The display of comic strip in form of 2D and will be create as same as how to read comic conventional : left-up → left-right → left bottom → right bottom
Material collecting	Data is collected by interview, observation, and sutdy of literature. Interview is carried out with the traffic policeman West Semarang. The study about comic strip is also be carried out so that story on daily safety riding can be Studi literatur komik strip juga dilakukan sehingga cerita daily safety riding can be delivered very well.
Assembly	Design assets such as traffic violation story, characters, interactive comic panels, and each panel background. Coding use actionscript 3.0 in Adobe Flash CS6 which support for android devices.
Testing	Interactive comic will be tested by touching every panel per page. Panel that originally is static image turns into a dynamic ones (animation).
Distribution	After testing, interactive comic can be copied or shared.

Source: Personal Documentation

4.3 Interactive Comic Safety Riding

Story about traffic violation are often carried which are displayed in interactive comic has been specified, namely: 1)the impact of not using helmet; 2)ride motorcycle on the sidewalk track; and 3)breakthrough the red traffic light.



Figure 5 the concept interactive comic safety riding on tablet pc device

Source: Personal Documentation

This interactive comic adapt the comic strip, the story of each page finished directly. Each page contains a story with 4-6 panels that can be touched so that the stories in comics come alive. On the top side there is a title of the story, in the middle there are panels, and at the bottom there are

several buttons to access other menus. The concept of comic installation is focused on the tablet pc with a screen between 7 – 10 inches.



Figure 6 display interactive comic on tablet PC page 1,2, and 3
Source: Personal Documentation

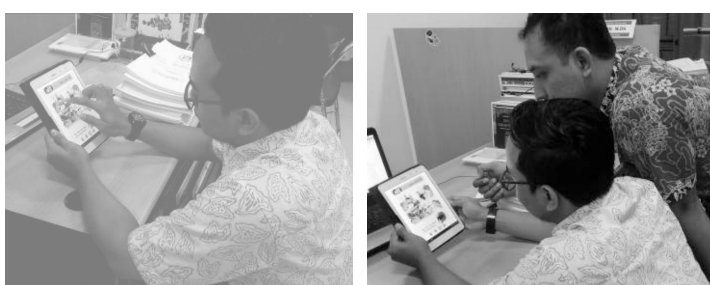


Figure 7 user is trying to test while reading interactive comic on tablet pc
Source: Personal Documentation

Before every panel has been touched, this interactive comic as same as conventional comic strip. But after being touched, the panel will animate objects in it so it turns into moving story. The objects are animated in order to more entertain without leaving the main goal that is socializing safety riding.

5. CONCLUSION

The mobility of human that very high with the number of motorcycles are more increase on the highway cause traffic jam, and further can cause traffic accidents. To solve this issue, the traffic policeman and related parties need to provide guidance in the form of safety riding campaign which aim to make riders have enough knowledge about safety riding. Multimedia is one of the alternative media which allows user to interact with the devices. This interactive comic is one of the creative and communicative media in conveying the messages and guidance about safety riding. The results of this research is expected to create new ideas to join in succeeding safety riding campaign.

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