

## **DEVELOPMENT OF DIGITAL COMIC STRIP MEDIA ON CONVENTIONAL AND ELECTRIC CIGARETTE CONTROL WITH THE ADDIE MODEL**

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### **ABSTRACT**

Many traditional smokers are switching to electronic cigarettes or becoming dual users due to the perception that e-cigarettes can help reduce addiction and are less harmful. The use of pictorial health warning on cigarette packs is not sufficient to educate adolescents on the health risks of smoking, prompting the need for more accessible and appealing informational media to change adolescent smoking habits. In response, researchers aim to develop digital comic as an innovative health promotion tool to shed light on the risk associated with traditional and electric cigarettes. This research is a type of development research called research and development (R&D). The model used in this research is analysis, design, development, implementation, and evaluation or the ADDIE approach developed by Robert Maribe Branch (2009). This study involved material experts, media experts, facilitators, and a limited population of adolescents to be able to make an assessment regarding the feasibility of the media developed by researchers. The results of the feasibility test of innovative media in the form of digital comic strips about dangers of conventional cigarettes and electronic cigarettes involving material experts, media experts, and adolescents as a whole media can be categorized as very feasible with an average of 83.76%. Digital comic strips can be an alternative to innovative health promotion media to approach adolescents, especially groups of elementary and junior high school students, to increase their knowledge of the dangers and impact of smoking behaviour.

**Keywords:** Comic digital; health promotion; cigarettes; adolescents

### **INTRODUCTION**

Smoking is one of the most significant public health problems faced by countries around the world. Smoking habits are often seen in junior and senior high school students because this is a transition period from childhood to adulthood (1). During this period, individuals experience physical and psychological development and change. Thus, adolescents tend to be emotionally unstable, resistant, anxious, and eager to experiment and explore. Teenagers who like trying new things are more likely to develop a smoking habit (1).

Technological advances greatly affect all aspects of people's lives, including changes in individual lifestyles. These conditions have also encouraged the emergence of electronic cigarettes, or vapes, which are currently popular among adolescents and have become part of their lifestyle (2). Many conventional and beginner smokers are switching

to electric cigarettes or becoming dual smokers because electric cigarettes are considered less risky and can eliminate addiction (3).

The World Health Organization (WHO) report in 2020 found that 22.3% of the total population in the world uses tobacco, including 36.7% of men and 7.8% women (4). More than 80% of the total 3.1 million tobacco users worldwide live in countries with low and middle economic levels. Tobacco users have an impact on the economic condition of the family, because there is a tendency that smokers prioritize spending to buy cigarettes compared to the fulfillment of proper food and shelter (4). Indonesia is the third country with the highest number of smokers in the world (112 million smokers) after China (293 million smokers) and India (147 million smokers) (5). Data from the Indonesia Health Survey (HIS) in 2023 showed that the proportion of electronic smokers in the population aged  $\geq 10$  years in Bali Province (8.5%) was higher than the national proportion (3.2%) (6). In relation to these data, a study found that the second largest age group as active smokers, namely the general group of 15-24 years (33.5%) including 64.7% of men and 2.3% of women (4).

Health education can be carried out with various methods and media (7). Media in health education is used to facilitate the delivery of health messages to targets (1). In connection with this, it is important for researchers to develop an innovative media of health promotion about the dangers and effects of conventional cigarettes and electronic cigarettes in the form of digital comics. Comics are media that are simple, clear, and easy to understand (8). Comics are usually developed by containing image or characters (cartoons) that act out a story and are modified with writing as an explanation of the subject matter, so comics also have appeal (9). Comic also help in conveying messages and information that is easily accepted, does not seem patronising and can increase reading interest (8,9). Health promotion with adolescents targets will be more communicative with the use of comic media that contains elements of entertainment and visual message. The use of digital comic media aims to facilitate adolescents' access to information about the dangers and impacts of conventional cigarettes and electronic cigarettes easily.

## **METHODS**

The type of this research is development research called research and development (R&D). Methodologically, this research is at the level 4 stage, which is researching and testing in creating new products. The model used in this research is analysis, design, development, implementation, and evaluation or the ADDIE Approach developed by Robert Maribe Branch (2009) (10).

This research was conducted at the UPTD PUSKESMAS II Work Area of the North Denpasar District Health Office. The implementation of this research will be carried out for six months, namely June to November 2024. This study involved material experts, media experts, facilitators and a limited population of adolescents to be able to make and assessment regarding the feasibility of the media developed by researchers. Researchers used a questionnaire data collection method with a questionnaire instrument equipped with statements that could assess the feasibility of the developed health promotion media.

In this study, researchers conducted data analysis by calculating score of each categorized indicators to conclude the feasibility of the health promotion media developed

by researchers. This was done at the same time to test the credibility of the data through the involvement of several material and media experts who had been selected (11).

## RESULT

Researchers conducted several stages in the process of developing innovative media in the form of digital comics about the dangers of smoking both conventional cigarettes and electronic cigarettes. The first stage, planning begins with observations and interviews with health promotion program holders related to the availability of media used in conducting education related to conveying information about the dangers of smoking. The results of the observation obtained several conventional media used in health promotion activities about the dangers of smoking, such as stickers, leaflets, and posters.

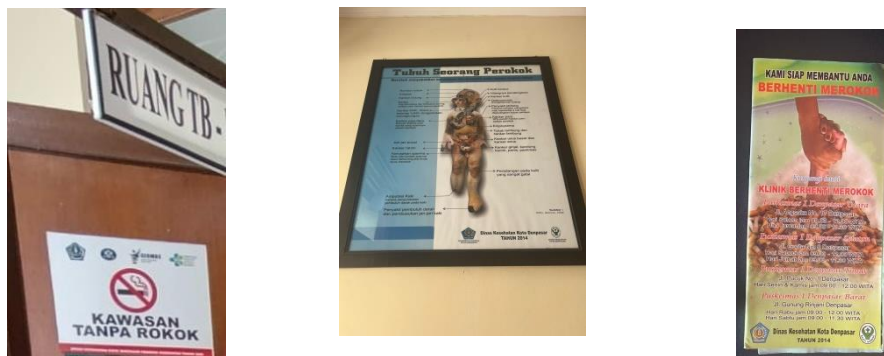


Figure 1 Conventional Health Promotion Media (available)

Based on the result of observations and interviews conducted by the researcher, the researcher made developments by paying attention to the following points:

**Table 1.** Aspects of Innovative Media Development

No	Development Aspect	Description
1	Material	<ol style="list-style-type: none"> <li>1) Make an outline of the material/topic of the comic to be developed</li> <li>2) Determine the character of the character</li> <li>3) Make a simple conversation</li> <li>4) Selecting several supporting images to explain the material/conversation</li> </ol>
2	Media	<ol style="list-style-type: none"> <li>1) Designing digital comics related to the dangers of conventional and electric cigarettes with Canva.</li> <li>2) Designing the display with appropriate colours</li> <li>3) Arranging conversation balloons according to the characters that have been determined</li> </ol>

Researchers developed innovative media using the Canva application in accordance with the aspects describe in Table 1. The concept used in the development of this media is the concept of a more concise comic trip with short and light stories. The following are the



each aspect related to the comic strip media developed by researcher. The result of filling out the questionnaire, then analysed and tabulated by the research, so as to get the following result:

**Table 2.** Tabulation of Media Feasibility Test by Material Expert

Aspect	Total Score	Max Score	Percentage (%)	Criteria
The suitability of the conversation with educational material	11	12	91,67	Very feasible
Suitability of media contest with the characteristic of the respondent	12	12	100	Very feasible
Suitability of the way the material is delivered with the development of respondents	9	12	75	Feasible
Providing opportunities for independent thinking	10	12	83,33	Very feasible
The attractiveness of the title	9	12	75	Feasible
The attractiveness of the delivery of message content in the media	9	12	75	Feasible
The conciseness of the media presentation of the material	9	12	75	Feasible
The correctness of the content of the material	10	12	83,33	Very feasible
Clarity of material content	12	12	100	Very feasible
Depth and breadth of material	9	12	75	Feasible
Language suitability with EYD	9	12	75	Feasible
<b>Total</b>	109	132	82,58	Very feasible

The result of the media feasibility test by material expert concluded that digital comic strip media is an innovative health promotion media that is very feasible to use in delivering health information related to the dangers of conventional cigarettes and electric cigarettes. Some aspects that need improvement, namely related to the suitability of the delivery of material with the development of respondents, the attractiveness of the title, the attractiveness of the delivery of message content in the media, the orderliness of the presentation of the material, the depth and breadth of the material, and the suitability of language with EYD.

Feasibility testing on media expert was carried out assess 13 aspects/indicators, consisting of:

- 1) The accuracy of the background with the material
- 2) Accuracy of layout proportions
- 3) Accuracy of font selection for easy reading
- 4) The accuracy of the font size to make it easy to read
- 5) Accuracy of text colour to make it easy to read
- 6) Image composition
- 7) Image size

- 8) Image display quality
- 9) Accuracy of conversation with the message conveyed
- 10) The attractiveness of the digital comic display
- 11) Media durability
- 12) Compatibility with users
- 13) Flexibility

The following are the results of the analysis of the media expert assessment based on the 13 aspects/indicators above:

**Table 3.** Tabulation of Media Feasibility Test by Media Expert

Aspect	Total Score	Max Score	Percentage (%)	Criteria
The accuracy of the background with the material	9	12	75	Feasible
Accuracy of layout proportions	11	12	91,67	Very feasible
Accuracy of font selection for easy reading	10	12	83,33	Very feasible
The accuracy of the font size to make it easy to read	10	12	83,33	Very feasible
Accuracy of text colour to make it easy to read	10	12	83,33	Very feasible
Image composition	11	12	91,67	Very feasible
Image size	11	12	91,67	Very feasible
Image display quality	9	12	75	Feasible
Accuracy of conversation with the message conveyed	11	12	91,67	Very feasible
The attractiveness of the digital comic display	10	12	83,33	Very feasible
Media durability	11	12	91,67	Very feasible
Compatibility with users	10	12	83,33	Very feasible
Flexibility	12	12	100	Very feasible
<b>Total</b>	135	156	86,54	Very feasible

Table 3 shows that the results of the feasibility test form media expert can be concluded to be categorized as very feasible, but there are two aspects that need to be improved, namely related to aspect of background accuracy with material and image display quality.

Researchers also tested the feasibility of digital comic strip media on 10 adolescents who were included in the youth's POSYANDU. There are 8 aspects/indicators assessed by adolescents to categorize the feasibility of digital comic strip media, namely:

- 1) The attractiveness of comic media
- 2) Ease of understanding the material
- 3) Systematic of the material presented
- 4) Use of language in the media

- 5) Attractiveness of appearance (shape and color)
- 6) Clarity of story and material content
- 7) Ease of use
- 8) Ease of management

The following are the result of the analysis of adolescents' assessment of digital comic strip media based on the 8 aspects/indicators above:

**Table 4.** Tabulation of Media Feasibility Test by Media Expert

Aspect	Total Score	Max Score	Percentage (%)	Criteria
The attractiveness of comic media	34	40	85	Very feasible
Ease of understanding the material	37	40	92,5	Very feasible
Systematic of the material presented	30	40	75	Feasible
Use of language in the media	37	40	92,5	Very feasible
Attractiveness of appearance (shape and colour)	30	40	75	Feasible
Clarity of story and material content	35	40	87,5	Very feasible
Ease of use	30	40	75	Feasible
Ease of management	30	40	75	Feasible
<b>Total</b>	<b>263</b>	<b>320</b>	<b>82,18</b>	<b>Very feasible</b>

Table 4 show that the results of the feasibility test from adolescents can be concluded to be categorized as very feasible, but there are four aspects in the feasible category that need to be improved, namely related to the systematic aspects of the material presented, the attractiveness of the appearance (shape and colour), ease of use, and ease of management.

## DISCUSSION

Comic in general are visual media that are in great demand by the public, including adolescents, while the public in general considers comics to be something that is humorous, suspenseful, builds curiosity that can bring readers to the background situation told (12). Digital comics are also digital education media in the form of images, symbols, stories with certain characters that can provide information or message content with text information as an explanation (13). The feasibility test process carried out in this innovative media development research involving media and material experts is an effort to get a product that can increase adolescents' interest and awareness regarding the topic of the dangers of smoking (12).

## CONCLUSION

The conclusions of this research are as follows:

- 1) The process of developing innovative media in the form of digital comic strips about the dangers of conventional cigarettes and electric cigarettes war carried out by researchers with the stage of analysis, development, design, implementation, and

evaluation. The analysis process was carried out by interviewing health promotion officers and observation, the development and design stage were carried out by planning the design and using the Canva application. The implementation and evaluation stages are carried out by feasibility testing.

- 2) Researchers conducted a feasibility test of innovative media in the form of digital comic strips about the dangers of conventional cigarettes and electric cigarettes by involving material expert, media expert, and adolescents. The result as a whole media can be categorized as very feasible.
- 3) Researchers recommend that digital comic strip can be an innovative alternative health promotion media to approach adolescents, especially groups of elementary and junior high school students, to increase their understanding of the dangers and impacts of smoking behaviour.

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