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Developing Multimedia-based Learning on Avoiding Imprecise COVID-19 Patients

Syafiq B. Assegaff
Institut Komunikasi dan Bisnis LSPR, Jakarta, Indonesia

Hadi Sutopo
Kalbis Institute, Indonesia

Sri Dhuny Atas Asri
Medical Faculty UIN Syarif Hidayatullah, Jakarta, Indonesia
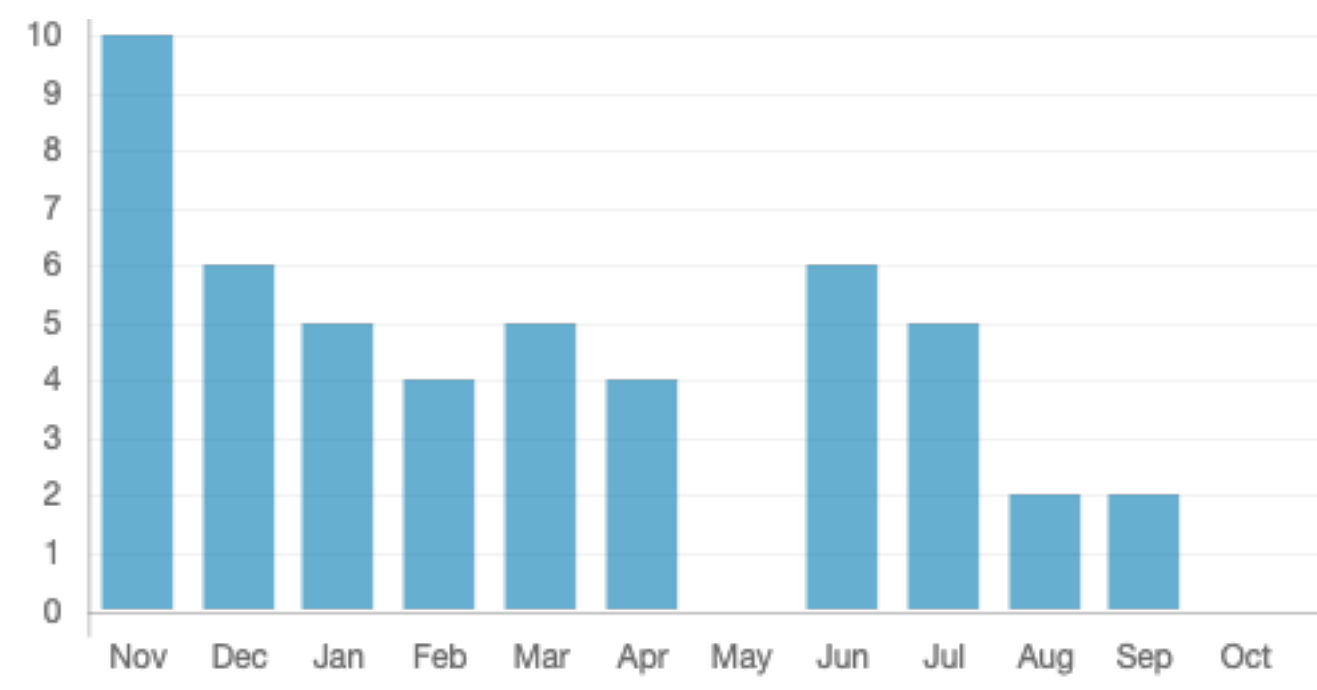
Enrico Adhitya Rinaldi
PT. Enmedicare International, Jakarta, Indonesia

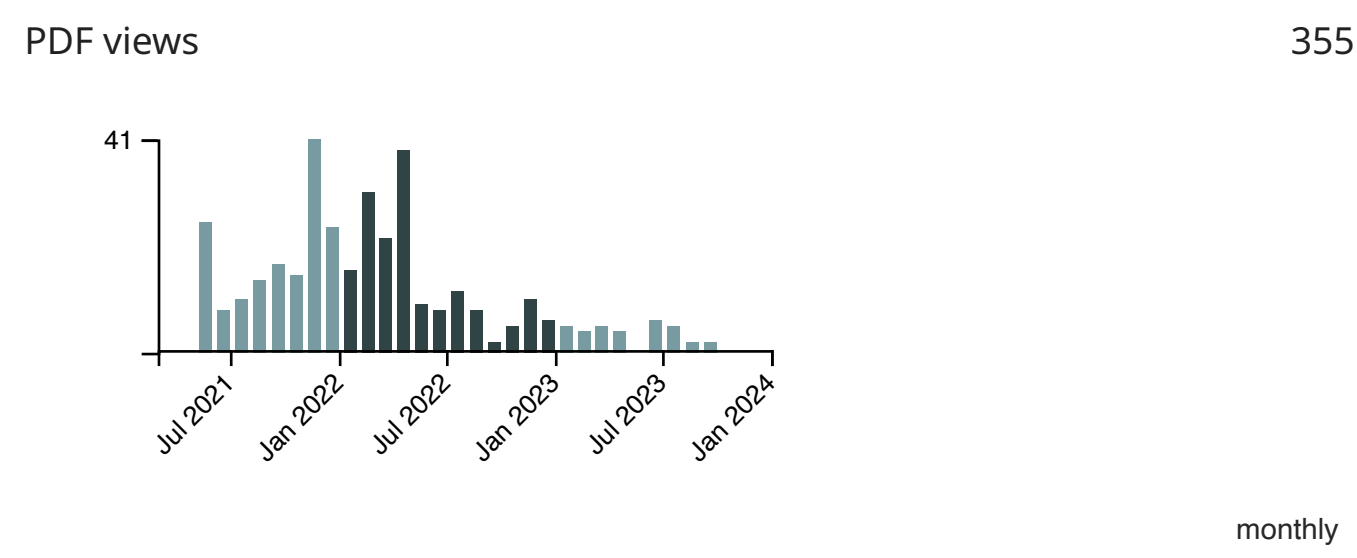Keywords: Doctor-patient communication, learning, multimedia, COVID-19

Abstract

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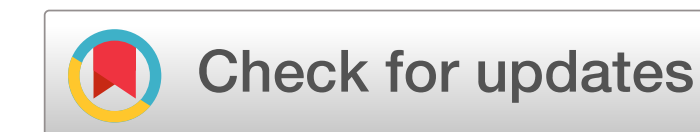
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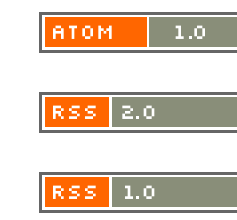Social Sciences and Humanities in a Post Crisis Period 2022/2023
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Syafiq B. Assegaff
Institut Komunikasi dan Bisnis LSPR, Jakarta, Indonesia
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Abstract

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Keywords: Doctor-patient communication, learning, multimedia, COVID-19

Introduction

Coronavirus disease (COVID-19) pandemic forced most educational institutions around the world to close the learning process temporarily to avoid the spread of the virus. Billions of students the world from pre-primary to higher education, have seen their education disrupted and interrupted. Governments all around the world have closed educational institutions in an attempt to contain the global pandemic. (Unesco, 2020). UN Secretary General Antonio Guterres has warned that school closures because of Covid-

19 "could waste untold human potential, undermine decades of progress, and exacerbate entrenched inequalities." Because of the economic consequences of the pandemic, it is estimated that next year almost 24 million children from pre-primary to university level in 180 countries are at risk of dropping out of education altogether (Newey, 2020).

Imprecise Covid-19 patients:

Since the Covid-19 pandemic many doctors are not only facing challenging extra works and longer time in the hospitals, patients and their families are afraid to be stigmatized by the community, and rather chose to be risking the illness which is also known as SARS-CoV-2. There are media reports that showed stigmatizations towards death (victims of Covid-19) often happened in many areas in Indonesia (Assegaff, 2020). This is related to what so called 'parasite avoidance' (Sarabian et al. 2018), when creatures avoid or run from dangers or filthy (dirty) things. Apparently, this happens among many chronic diseases such HIV/AIDS, TBC, etc.

The problem is that the given ill signs (by those patients or their families) will obstruct doctors to notify correct signs and symptoms and make proper diagnosis or they will produce wrong diagnosis. Of course, there are tools to help doctors in constructing adequate diagnosis such as laboratory examinations, X-Ray, etc. However, one of the best keys for this, in our opinion, is that doctors must use the most needed tool in the medical encounters, i.e. effective communication between them and their patients. . It is important to make everyone understand to tell the truth when he or she comes to hospital. The awareness can be developed through learning from many resources that can be found in mobile application.

Learning is very important for human life from his/her birth till the end, because of the necessity to adapt the environmental changes, information and knowledge should be gained every time (Semiawan, 2007).

Harrington (2015) cited Babrow and colleagues who identified five sources of patients' uncertainty which include complexity of the illness, quality of information, and structure of information. That being said, we understand that information, both the quality and its structure, consumed by patients play great roles in dealing with their disease. In many cases, as explained by Harrington (2015), feeling uncertain is an uncomfortable state for humans. We all assume that uncertainty is always a bad thing. Furthermore, Harrington (p.184) maintained that, "effective communication about illness can help patients to feel more certain about their diagnosis, treatment, and social aspects of their disease, which may lead them to better deal with the challenge of their illness."

The fast development of digital technology impacts the using of mobile applications for variety purposes, including learning, information, campaign,

advertisement, etc. Using together multimedia elements in a mobile application such as images and animations that are provided with sound, video clips, and text, will provide clearer meaning and make people to get easier understanding. Vaughan argued that multimedia change radically in the learning process, how students change from passive to active learning [3]. So multimedia can be used as an instructional tutorial to inform patients telling the truth to doctors through varieties of media.

This study aims to develop a mobile multimedia application particularly to campaign or inform telling the truth is the right to do by patients when they go to hospital, especially during crisis caused by pandemic such as the current COVID-19 outbreak.

Media:

An instructional tutorial as an information is a series of instructional messages that share a single idea and theme which make up an integrated communication. Instructional information utilizes diverse media channels over a particular time frame and are often mandated to be rationally defined. The information theme is the central message that will be conveyed in the important activities and is the main focus of tutorial information as it sets the motif for the series of multifarious individual messages and other tutorial communications that will be used. The tutorial themes are usually produced with the objective of being used for a significant period but many of them are temporal due to factors like being not effective. (Sutopo, et al., 2019)

On a global scale, digital media is very comfortable to be used including to a screen, reading digital media, social networks and other discussion forums (Sutopo, et al., 2019). Although the internet is considered a crucial part of contemporary life, it also represents the state of emergency in risky behavior. Many studies show that people can be addicted to internet, resulting harmful effects on social behavior, habits and abilities (Grajczonek, 2011).

Multimedia:

Information media as a combination variety of multimedia object, and digital multimedia as a combination of text, graphic, animation, sound, and video that is presented to the user using a computer (Sutopo et al., 2019). Many applications use multimedia system for education, presentation, and industry of game. Using allows someone interact with the many objects in the application. The most popular and powerful concept in multimedia is interactivity, that it is as an interesting part of an application.

The previous research was written by Giorgi Basilaia and David Kvavadze (2020) made a case study where the Google Meet platform was implemented for online education in a private school with 950 students. The

results confirmed that the quick transition to the online form of education went successful and gained experience can be used in the future. The experience and studies can be useful for other countries that have not found the ways of transition yet. Another mobile game was a tutorial as a campaign to stop drugs that should encourage people's ability to integrate all information on mobile application. The tutorial focuses on how people understand about drugs and what to do if someone is drugs addicted [4]. The research findings showed that mobile multimedia stop drugs tutorial application could be used with minor revision.

This paper describes a proposed design how to develop multimedia-based application on avoiding imprecise COVID-19 patients. Using this application, handling COVID-19 will gain some advantages, as (1) the patient tells to provide a the history of the disease; (2) the accuracy of patient data facilitates diagnosis by doctors; and (3) the public welcomes people with COVID-19.

Method:
There are two kinds of methods that are used in this research. The first method is developing multimedia instruction or learning and then the second one is developing a mobile multimedia-based application. This research uses a combination of ADDIE model and Multimedia Development Life Cycle (MDLC) (Sutopo et al., 2019) as can be seen in Figure 1.
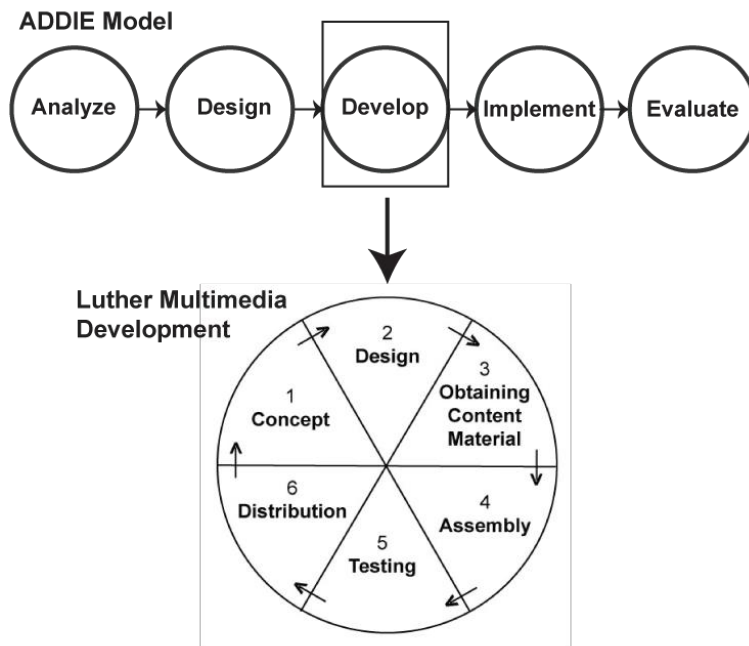

Figure 1 - Research method combining ADDIE model and Luther's Multimedia Development Life Cycle

Developing Stop Fear Covid-19 Instruction

Designing the tutorial was required to gain a good product, so that the learning process became more effective and efficient. There are many models of instructional design including ADDIE, Gustafson, Jerrold Kemp, etc. Some people used different instructional design models, but fife phases were the same. These are analyze, design, develop, implement, and evaluate (Aldoobie, 2015). ADDIE model can be described in Figure 1 as follows: (1) **Analyze**. The objective of this paper is defined introducing COVID-19 information, content of information, audience, and infrastructure; (2) **Design**. The interface design and algorithm that will be used in the tutorial are developed. Storyboard and navigation structure can be used to describe the project; (3) **Develop**. During the Develop step of ADDIE, Multimedia Development Life Cycle is used to guide what the researcher should do make a product. (Sutopo & Pamungkas, 2017). The overall of the project is built, the information is assembled using programming language. The application is run in the Testing phase, and checked to confirm that it is the same as that proposed by the author. The system is tested to fix all the functions of application work well. After the functional testing, the application must be run on variety mobile devices; (4) **Implement**. During this step, the application is reproduced and delivered to audience for their use on their mobile devices. The distributed application file should be run on mobile devices; and (5**) Evaluate**. The application must be evaluated whether it can increase people's knowledge. This section presents method of tutorial and testing development that is used in this research.

This research is done using the 3rd step of ADDIE model that is called Develop, in which the product is built using Multimedia Development Life Cycles (MDLC). Authoring is somewhat like making a feature film, a movie, and there are many steps to the process. Multimedia Development Life Cycle, a typical multimedia systems development, may involve the following six major steps, as follows: (1) **Concept**. The objective for the project is defined, including type of multimedia, audience, and infrastructure; (2) **Design**. This is the process of deciding in detail what will be in the project and how it will be presented, including script writing, storyboarding, making navigation structure; (3) **Obtaining of content material**. During this stage all the data, audio, video, and images for the project are collected in appropriate digital formats; (4) **Assembly**. In this step, the overall of the project is built, multimedia application with interactive feature is assembled; (5) Testing. During testing, the application is run and checked to confirm that it does exactly what the author has intended. The application should be run on varieties devices; (6) **Distribution**. In this step, the application is reproduced and delivered to end users for their use. In this application, this would be the release phase.

Results and Discussion:

During creating a skills and competency learning, ADDIE model was used to analyze and design the learning system.

Analyze

The beginning of the developing multimedia-based application is data collection using questionnaires. The respondents were public and doctors. The data was analyzed using the analytical descriptive method and interpreted in a narrative way based on the research findings. Analyzing and data processing carried out with six stages including data gathering, preparing data for analysis, careful reading, developing the code, presenting the data and analyzing the data [10]. Table 1 shows the list of questions and answers that was used for the public respondents, and Table 2 shows the list of questions and answers that was used for the doctor respondents.

Table 1 - Questionnaires and answers of public respondents

No.	Questionnaires	Answers
1	If you are a patient, will you be open when questioned by your doctor; meaning that you will elaborate on your current condition/symptoms and your medical record (not concealing any disease or complications you've experienced)?	Open
2	By any chance if someone (a patient) not being open to questions, what disease would you assume he/she is are concealing?	• sexually transmitted diseases, like HIV/AIDS, etc. • Heavily stigmatized diseases, like tuberculosis, Covid-19. • Pandemic/plagues, like Covid-19.
3	If a patient covers up their true medical history or condition to a doctor (refuses to be open), what do you think would be the cause? (you can choose more than one option)	• Bring shame upon and fear of being rejected by friends, their family, and neighbors. • Societal and mass media scrutiny on the sick, being rejected by their environment.
4	Receiving more information on the disease will allow the patients to change their behavior and be more open to the attending doctor.	Strongly agree and agree.
5	What is your most used electronic device?	I use my phone more than using PC / laptop

6	There are times when patients would be in a dilemma; knowing that they have a potentially contagious disease, but at the same time doubts whether they should be open about it. What proper actions must they take in response to this?	They should be open about their disease, so that other people can maintain a healthy distance to prevent further transmission.
7	Which social media platform do you use most often. Do rank from used most (number 1) to used least (number 6). For example, if "Facebook" is the one you use most often, type 1 next to "Facebook".	Whatsapp
8	Where do you acquire most health-related informations from (choose one that you source the most)?	• Via mobile devise/gadget: accessing a link that is SHARED by friends on social media (example: through Whatsapp, Telegram, Instagram, etc.) • Via mobile device/gadget: INDIVIDUAL RESEARCH example "Google Search, with the absence of any attached links".
9	Which internet platform do you count on when trying to get information on the Coronavirus pandemic?	• Mobile applications (Smartphone.) • Official websites (from Ministry of Health, CDC, etc).
10	Based on your personal preferences, what kind of format eases audiences in understanding information we're currently accessing (seeing/reading/listening)?	Multimedia (texts, graphics, and audio).
11	As far as you can recollect, have you ever concealed any disease you've experienced to prevent friends, family, or your neighbors from knowing?	I've never concealed my medical history.
12	If someone has hidden their disease from their friends and family, what do you think they are experiencing/thinking? (you can choose more than one)	Ashamed because that person considers that the disease is disgraceful.

13	If you were to experience such sickness you would wish to keep a secret, what would be your reaction at that moment of knowing?	Shocked but still having the faith that I will heal.
14	Based on your knowledge, how have Coronavirus patients been treated by their environment (friends, family, etc.)?	They are supported well.
15	Based on your knowledge, how have hospitals responded to Coronavirus patients?	They have provided good services .

Table 2 - Questionnaires and answers of doctor respondents

No.	Questionnaires	Answers
1	During anamnesis, I have encountered patients who aren't transparent/dishonest about their medical records and their complaints?	Agree.
2	Can you state from every 10 patients you encounter, how many of them do you think aren't open/dishonest.	1-2 patients (55,2 %). 3-5 patients (27,1 % of respondents). 6-8 patients (10,9%)
3	Do closed off/dishonest patients hinder your efforts in diagnosing them?	Strongly agree
4	What are the effects of a patient's dishonesty/lack of transparency to your diagnostic process?	Complicates the diagnostic process and raises the potential of misdiagnosis.
5	Usually patients' lack of transparency (being imprecise) happens because they might be experiencing a certain diseases. What do you think those diseases are (you can choose more than one option)?	• Reproductive/sexual diseases, like HIV/AIDS, etc. • Heavily stigmatized diseases, like tuberculosis, Covid-19.
6	If patients aren't open/dishonest (being imprecise) to their doctors, what do you think might be the cause? (you can choose more than one option):	• The shame and fear of being rejected by friends, their family, and neighbors. • Societal and mass media scrutiny on the sick, being rejected by their environment.
7	We know that the media (including social media) plays a role in extending information to the general public. This results in the risk	• It can cause stigma and discrimination in the face of the public

197

	misinformation when a news is falsely reported, which in turn harms many. What do you think should be done? (You can choose more than one option).	(example, to the Covid-19 plague). • Doctors should have at least a preliminary understanding in the field of communications & mass media.
8	If a patient receives additional information (from doctors/the hospital) about their diseases, chances of them to change their attitude is raised. In turn, they will be more open to the doctors (and hospitals) who are assessing them.	Agree.
9	How do you think information can be passed on correctly to avoid scaring them? (you can choose more than one option).	• Through a persuasive, patient-centered approach. • Explaining the facts, based on the hospitals' procedures (SOP).
10	There are some assumptions that due to bad communication between doctors and patients, they might doubt the doctors competencies and diagnosis.	Agree.
11	What electronic device do you use most often?	I use my smartphone (mobile gadget) more than I use my PC / laptop
12	Which social media platform do you use most often. Do rank them from 1 (most used) to 6 (least used). (Choices: Whatsapp, Facebook, Twitter, Instagram, Telegram, YouTube).	Whatsapp (WA).
13	What platform do you use most to acquire information about the coronavirus? (Choices: Online newspapers; Digital magazine; Mobile application, Formal websites from Ministry of Health, CDC, WHO, etc; Online seminars such as Zoom meetings, etc.)	Formal Website (from Ministry of Health, CDC, WHO, etc).
14	What format do easily-understood information come in?	Multimedia (texts, graphics and audio).

15	Experts said that doctors-patients communication needs to liberate patients from their uncertainty. In your opinion, which states below will cause uncertainty the most? (you can choose more than one option).	• Misleading information from the media/social media. • The quality of information they received from varied sources.

Based on the research findings and discussion of the researchers and clients, the application would be formed as described in Table 3.

Table 3 - Concept of Multimedia-based Learning on Avoiding Indistinctive COVID-19 Patients

Object	Description
User	Public
Topics	- COVID-19 - Complaints - Medical Record - Diagnosis - Hospital - Family - Community
Application	- Mobile multimedia that can be run on mobile devices
Multimedia object	image, animation, text, sound
Interactivity	button, touch screen

Design:

Design of learning content was generated based on the analyzing at the previous phase. The content of learning consists of COVID-19, Complaints, Medical Record, Diagnosis, Hospital, Family, Community, and Informing true medical record to a doctor as displayed in Figure 2.
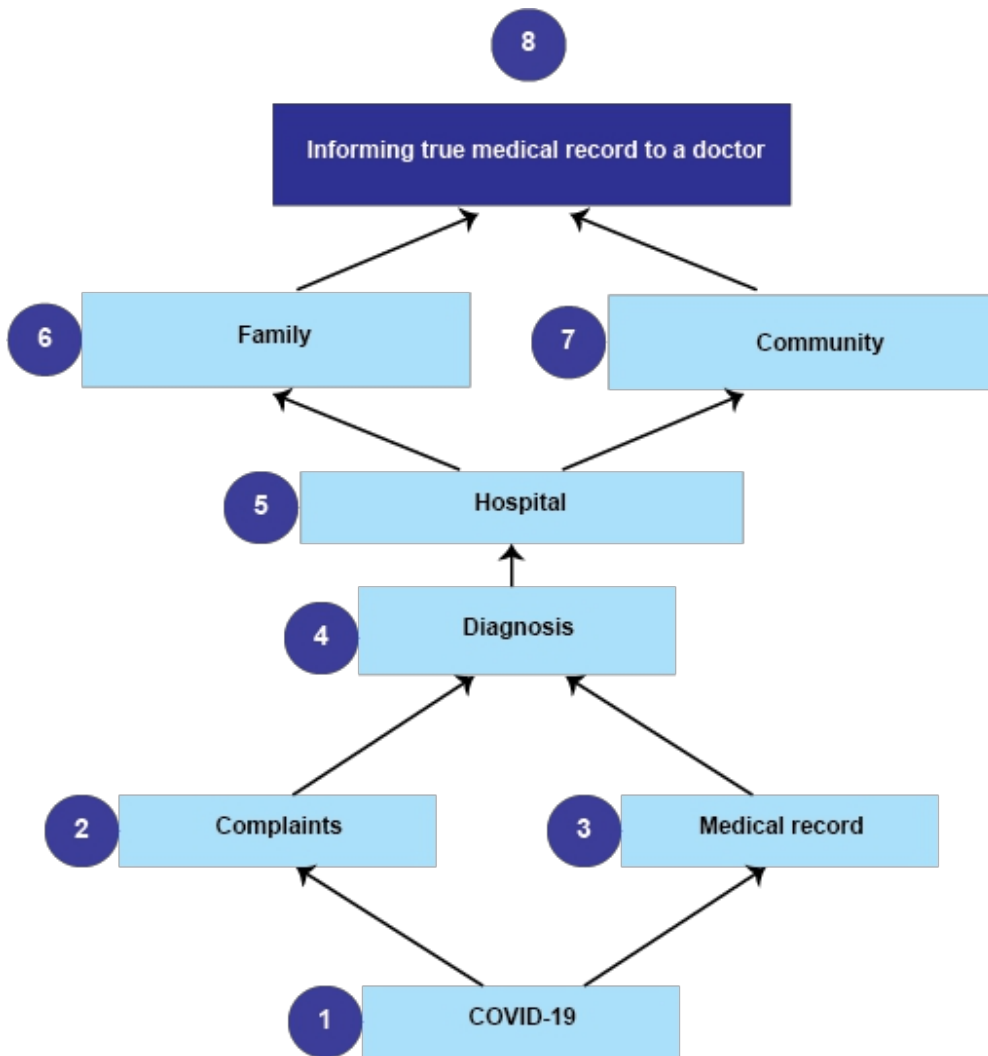
Figure 2 - Competency map of information

After designing the competency map, the next step is creating storyboard and navigation structure that are displayed in Table 4 and Figure 3.

Table 4 - A part of storyboard

| Scene	Image	Description
3	Image Storyboard	Title: **COVID-19** **Background** Image COVID-19 **Text** Introduction about COVID-19 and the affect on economics, social, and education **Image** People wear mask, chart **Animation** Text and image animation **Audio** Music background **Video** - **Interactivity** Button
4	Image Storyboard	Title: **Complaints** **Background** Hospital **Text** Information about complaint of patients and medical record **Image** Patient and doctor **Animation** Text and image animation **Audio** Music background **Video** - **Interactivity** Button .
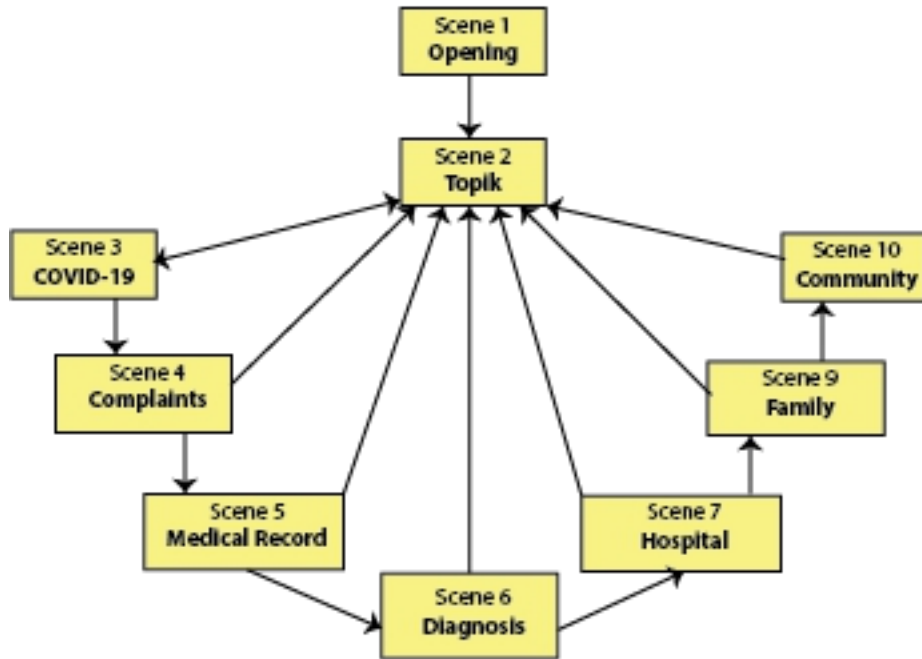
Figure 3 - Navigation Structure

Limitation of Research:

Developing Multimedia-based Learning on Avoiding Indistinctive COVID-19 Patients consists of 5 phases is still in progress. The third phase Develop is starting to be conducted.

Conclusion

Based on this study of Multimedia-based Learning on Avoiding Indistinctive COVID-19 Patients that was described, researchers can conclude: (1) The information derived from the initial research was used as a guideline for developing multimedia application, (2) The developing multimedia-based learning was carried using the ADDIE model and combined with Multimedia Development Life Cycle (MDLC); and (3) multimedia-based learning delivers information about COVID-19 including patients must tell the medical record to doctor. The advantage is reducing uncertain medical record that is not described by patients.

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