

Developing Adobe Flash-Based Game to Teach Children Covid-19

Vocabulary

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Abstract

Some protocols published by WHO during this outbreak are to keep safe distance with minimum 1 meter, wear face masks especially in public places. Other health protocols such as wash hands using soap or hand sanitizer or have shower after being at home from work or other places are also being campaigned by government. However, most information provided used difficult language and hard to understand by children. This study therefore attempts to 1) develop a flash-based game to teach English vocabulary of Covid 19 2) teach children what they have to do during outbreak era, what they must wear or use and what symptoms they have to be aware of related to the virus; 3) help them comprehend the policies published related to the outbreak. Furthermore, this game attempts to cover the right for children to access online gaming while keep educating them and protecting them from negative influences. This research conducted based on Research and Development method using Doppler Interactive Game Design Life Cycle as proposed by Joshua McGrath which basically consists of 6 iterative phases (Ramadan & Widyani, 2013), but here stopped at the testing process. Software used to develop this game were Adobe Flash and Adobe Premiere. The development of this game is also assessed appropriate by parents and English teachers in terms of the layout, the language or terms appropriateness, and the effectiveness.

Keywords: Adobe Flash game, Covid-19 game, English for children English learning

Introduction



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Almost all sectors have been impacted during this Covid-19 outbreak. Not only the human health, the Covid-19 pandemic has also hit some other sectors both public and private sectors including transportation, manufacture, aviation, religious activities, family dynamics (Nicola et al., 2020) religious culture and traditions, travel and tourism, and digital and media platforms (Djalante et al., 2020) and so on. To end this situation immediately, cooperation and collaboration among all level of society are required. People need to be educated about what actually Covid-19 is in terms of how to avoid it from transmitting quicker, what personal protective equipment needed, and being aware of symptoms may occur.

Some protocols published by WHO during this outbreak are to keep safe distance with minimum 1 meter, wear face masks especially in public places. Other health protocols such as wash hands using soap or hand sanitizer or have shower after being at home from work or other places are also being campaigned by government. However, most information provided used difficult language and hard to understand by children as like (World Health Organization, 2020), (Leung, Lam, & Cheng, 2020), or (Organización Mundial de la Salud, 2020).

In this case, children are parts of society who are sometimes forgotten while in fact it is easier for them to be infected by the virus than adults. It can be seen from little information published by government or even schools that easily understood by children. In terms of awareness, children also need to be introduced to self-awareness for this disease. By being familiar with the symptoms, children can help their parents to handle the symptoms better since they are quite similar to ones of some common diseases by virus such as influenza.

To help overcome this problem, this research was held that aims to; 1) develop a flash-based game to teach English vocabulary of Covid 19 2) teach children what they have to do during outbreak era, what they must wear or use and what symptoms they have to be aware of related to the virus; 3) help them comprehend the policies published related to the outbreak. The use of game is often used by teachers especially in teaching young learners to engage students in the teaching and learning process. Game prevents students from getting bored of paperwork.

Unlike in the past times where games are mostly associated with physical and outdoor activities; digital natives today are most familiar with digital games. (Garris, Ahlers, & Driskell, 2002) captured the major changes in learning to a more learner-centered from previously didactic and tradition model, in other words, from learning by listening to learning by doing. This viewed is supported by Prensky, this shift is predominantly due to radical changes on today's generations and one of the most effective ways to motivate them to study (Al Fatta, Maksom, & Zakaria, 2018; Van Eck, 2006).

Moreover, during the quarantine times, the hours spent on online games is significantly increasing as shared by Nielsen Games Video Game Tracking (VGT), the number of gamers has increased since March 23, 2020. The increase was highest in the U.S. (46%), followed by France (41%), the U.K. (28%), and Germany (23%) (Nielsen, 2020). Beside the increasing number of gamers, game creators have also released new games and some of them are related to Covid-19 among others *Dawn of Civilization COVID-19*, *Can You Save the World?*, *Plague Inc.*, *Pandemic, Outbreak – Infect The World*, and many others which can be downloaded (Alif, 2020; BASRA, 2020; BBC, 2020). However, many of those are considered as too difficult for young ages to understand and even quite inappropriate to play.



Parents try to keep the children busy in order to avoid boredom by involving children in some activities such as online learning, YouTube channels, story time, music class, learn a new language, virtual field trips, cook with kids and even have a part at home. Parents guidance and supervision is important during this time. On the other hand, this period gives parents more time to have activities together with their children.

This study therefore attempts to combine all of those backgrounds by creating a digital game related to Covid-19 which hopefully will provide positive contribution during this hard time. Moreover, this game requires parents to help children to play so it is safe besides that this game is not an online game. Furthermore, this game attempts to cover the right for children to access online gaming while keep educating them and protecting them from negative influences as suggested by Unicef (Kardefelt-Winther, 2019). In this study, adobe flash-game is used to give education to children about Covid-19 and at the same time help students learn about Covid-19 with easy method. The game in this study is designed to introduce children to words related to Covid-19 with “drag and drop” game. Hence, the units emphasized are words and chunks. Children need to match the words with the pictures. The game is divided into 3 main menus; what to do, what to use, and when to go to hospital.

In “What to do” section, children are introduced to activities need to be done regularly to avoid the virus transmission, in “What to use” section, children are given vocabulary related to equipment used in daily life to prevent the transmission, and the last menu “When to go to hospital” shows children some symptoms that need to be taken seriously about the virus.

Method

This research employed Research and Development method with Doppler Interactive Game Design Life Cycle as proposed by Joshua McGrath which basically consists of 6 iterative phases (Ramadan & Widyani, 2013), but here stopped at the testing process. Software used to develop this game were Adobe Flash and Adobe Premiere.

The users of this game during research were students of 2nd grade of elementary school as many as 28 children. The parents were asked to respond to questionnaire were 28 mothers and there were 5 English teachers of elementary school to see their perspectives related to the students’ needs of learning media. After the results gathered, then a macromedia flash game was selected as one of the best options to meet the needs stated by parents and teachers.

First, the vocabulary related to the outbreak were collected. The words chosen to be included in the game are those which are easily found in daily life and environment of children. Second, the design of the game was developed based on the needs of students, teachers, and parents. After the game is created, teachers and students were asked to use this game accompanied by parents.

A questionnaire then was distributed to teachers and parents. The questionnaires used Likert Scale of 1-5 from Strongly Disagree (1) to 5 (Strongly Agree). The questionnaire attempted to assess the content appropriateness, the convenience in terms of easy access, and the layout of the game.



Table 1. After-Use Questionnaire

No	Questions	Scale				
		1 Strongly disagree	2 Disagree	3 Undecided	4 Agree	5 Strongly agree
1	The language is easy to understand					
2	The words are suitable for children					
3	The game is easy to use					
4	The placement of words and pictures is well-organized					
5	The colors and fonts are eye-catching					
6	It is important to introduce children to Covid-19					
7	This adobe Flash Game is helpful for children to get to know Covid-19					

Results and discussion

The Adobe Flash game is developed to a drag-and-drop game completed with sound instruments and audio to give example of word pronunciation so children can imitate how to pronounce the word.





Figure 1. Start Menu Layout

The game is started by showing the start menu containing menu “Start”, “Author” and “Exit”. The image shows a girl reading a book indicating she is learning about what Covid-19 is.



Figure 2. Author Menu

The Author Menu shows the authors of the game. Then, children or users choose menu “Start” to start the game by typing their names first then click “Begin” to go to Main Menu; What to Do, What to Use, When to Go to Hospital (Figure 4)





Figure 3. Name Column

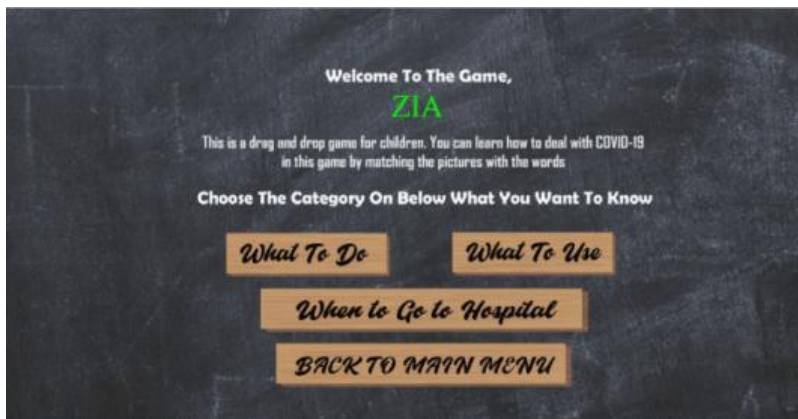


Figure 4. Main Menu

By clicking what to do, then children will get some explanation related to what they have to do during the outbreak.

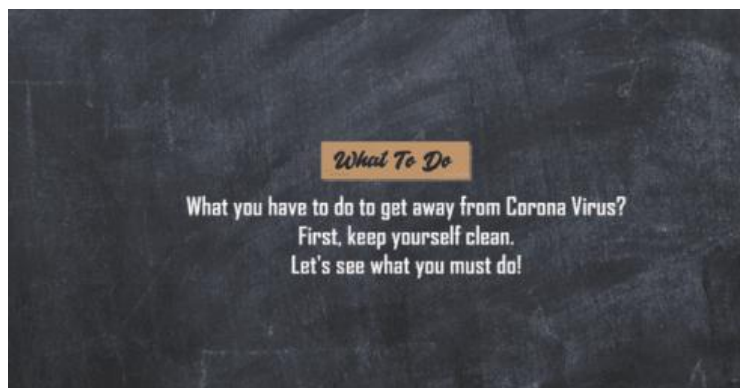


Figure 5. What to Do



Figure 6. What to Do Activity 1

When the word “Wash Hand” clicked, there will be audio of child pronouncing “wash hand”. It is expected to make children learn the words easier and more enjoyable. If the children match the word and the picture correctly, there will be audio “Yeiy Correct” that is expected to entertain and motivate children.



Figure 7. What to Do Activity 2



Figure 8. What to Do Activity 3

The activities included in “What to Do” session are; wash hand, have shower, wear face mask, keep distance, take vitamins, physical exercise. These activities are considered as those that are easily followed by children in daily lives with or without guidance from parents.



Figure 9. What to Do Activity 4

After finishing this session, children can go back to start menu by clicking “Back to Sub Menu” so they can play with another session; “What to Use”.

“What to Use” menu shows what children must use or wear to protect themselves from the spread of the virus in this outbreak.

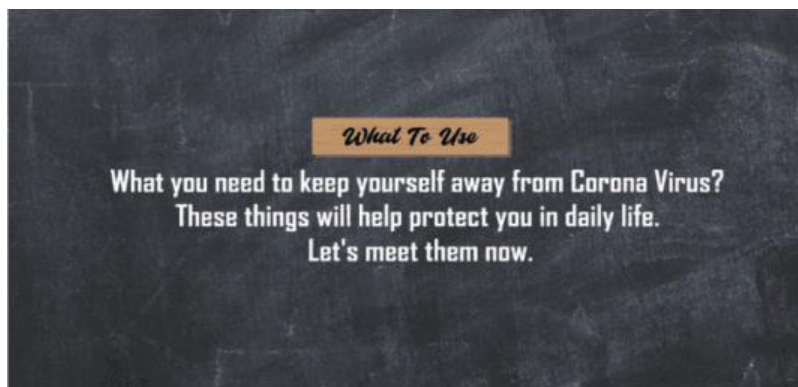


Figure 10. What to Use



Figure 11. What to Use Equipment 1

This session also gives audio to give example of how to pronounce the word by clicking the speaker sign. This is included to give students examples of how to pronounce the word correctly.



Figure 12. What to Use Equipment 2



Figure 13. What to Use Equipment 3



The equipment introduced in this session are face shield, face mask, hand sanitizer, and soap. The next step after finishing the session is clicking “Back to Sub Menu” so children can play another session; “When to Go to Hospital”.

“When to Go to Hospital” teaches children to be aware of their own body condition so they can be diagnosed early by going to hospital.

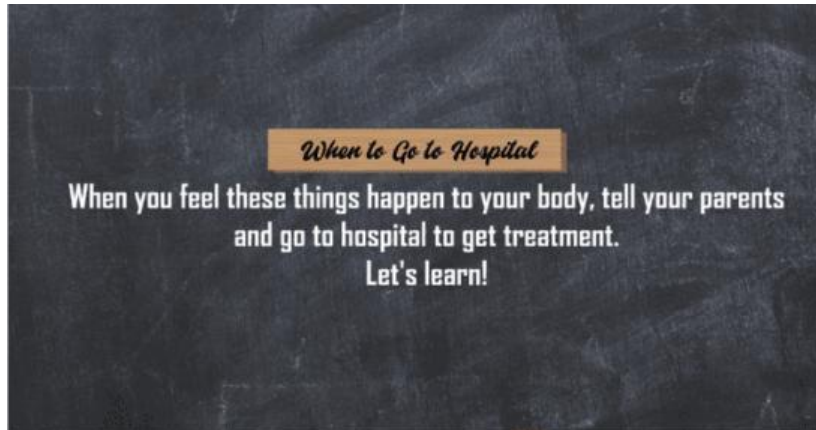


Figure 14. When to Go to Hospital

The term “these things” is used to replace ‘symptoms’ to make it more understandable for children.



Figure 15. Symptom 1



Figure 16. Symptom 2

The symptoms introduced here are; dry cough, fever, tiredness, and breathing problem. The symptoms included here were chosen because those are ones who are easily observed or detected even by children themselves. By knowing these easily-observed symptoms, children are expected to be able to tell their parents when they feel one of the symptoms.

The font chosen to be used in this game is the one considered fun and enjoyable for children. The audio assistance given also uses a little girl voice to give familiar and fun for children so they feel like having game with their friend.

A questionnaire then distributed to 28 mothers and 5 English teachers to ask for their opinion about this game, the results showed that;

Table 2. Results of After-Use Questionnaire

No	Questions	Scale				
		1 Strongly disagree	2 Disagree	3 Undecided	4 Agree	5 Strongly agree
1	The language is easy to understand				100%	
2	The words are suitable for children				100%	
3	The game is easy to use			10% (3/33)	90% (30/33)	
4	The placement of words and pictures is well-organized			16% (5/33)	84% (28/33)	



5	The colors and fonts are eye-catching	100%
6	It is important to introduce children to Covid-19	100%
7	This adobe Flash Game is helpful for children to get to know Covid-19	100%

Related to the terms or language appropriateness in point 1, all parents and teachers agreed that the language or terms used in this game is easy to understand by children. In the next development stage, there should be more vocabulary provided in the game so students can learn more. The vocabulary included in current stage were chosen because children can see or meet the equipment and do the activities in their daily lives such as washing hands, face masks, take vitamins, fever.

In point 2, 30 respondents agreed that the game is easy to use by children. The instructions given are easy to understand because they are stated briefly to prevent children from getting confused. The same technique of “drag and drop” is used in all three sessions to keep children familiar instead of changing the instruction from one session to another.

The placement of words and pictures is considered well-organized by 28 respondents while others thought that the pictures should not cover one another. The placement of pictures and words is arranged by ensuring children to see it clearly. The pictures were chosen carefully to prevent children guessing the meaning of the pictures.

The choice of fonts and colors is seen very good. Parents and teachers also agreed that it is important to introduce children to the outbreak happening right now since they also need to be aware of the environment when they have to go out. All respondents also agreed that this game is helpful for them to introduce children to all things related to Covid-19 starts from things to do, to use, and the symptoms may happen to their bodies.

Conclusion

From this research, it can be concluded that introducing children to Covid-19 is important since children are ones that easily get infected compared to adults besides elderly. Game as one of the most-familiar entertainment forms for children is considered appropriate to be used a medium to introduce Covid-19 to children and in this case, it helps them learn English at the same time.

The development if this game is also assessed appropriate by parents and English teachers in terms of the layout, the language or terms appropriateness, and the effectiveness. This game is seen as easy to use even for young children since it



uses drag-and-drop system. This system is also accounted for practicing children motoric skill. This Adobe Flash game will still go through development stages in the future so it will be a better product and can be used by more people.

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