

## **CHAPTER V**

### **CONCLUSION, IMPLICATION, AND RECOMMENDATION**

#### **5.1 Conclusion**

This research is aimed at finding out the development of 'Chavabot' as a learning media that can facilitate students critical thinking in earthquake and mitigation topic. Based on the research findings of the research study, the conclusions are as follows:

The Chavabot as learning media is developed through five stages. The first stage is analysis which includes analysis of needs, student characteristics, and topics used for development. The second stage is the designing stage where the researcher started to make a flowchart and the storyboard of the learning media. The third stage is the development stage, in this stage, the researcher starts to develop the learning media based on the three previous stages and the learning media that has been developed is brought to the experts for assessed. Furthermore, the judgment from experts are guide for revision for better learning media before the implementation stage. The fourth stage is the implementation stage learning media was delivered to teachers and students to be reviewed through the questionnaire. The last stage is the evaluation stage where the data from expert judgment students' and teachers' responses are collected and analyzed.

The learning media got was reviewed by six expert judgments. The analysis method of the data was used Aiken's V. The total value from all the result of Chavabot learning media got a high criterion of 0.81, it means the expert judgment results state that the Chavabot learning media developed to facilitate students critical thinking in earthquake and mitigation topic has high validity for use in learning. The learning media got a response result from three science teacher on mobile connectivity is 100%, followed by materials category with 100%, the user interface with an average percentage score of 100%, the learning experience category with 92%, and the critical thinking category with 92% also. All of the average percentage reach the criteria of very good, it also indicating that the Chavabot learning media is ready to be used to facilitate students critical

thinking in earthquake and mitigation topic.

The student response final average percentage score on mobile connectivity is 51% got the criteria of acceptable. Followed by material categories which got the percentage of 66%, user interface with 59%, learning experience category with 49%, and the critical thinking category with 67%. The students give low score on the aspects of easiness, students interest, and student motivation. However, the average percentage score of all categories is 66% which still acceptable, indicating the Chavabot learning media is ready to facilitate student critical thinking in earthquake and mitigation topic after most of low aspects were completely revised.

The learning media is designed based on the analysis of needs, student characteristics, and topics. In addition, the result of the expert judgment and teacher response showed that all aspects were good even though some revisions are needed. However, the student response results are varied but most of the aspects are in low scores but the average percentage is categorized as “acceptable”. There are many possibilities that make students give low scores on learning media, one of them is the characteristics of students and student background. International students with cultural backgrounds tend to be used to being very free and daring to have opinions and expressions, regardless of Chavabot learning media which was developed according to the analysis of researchers and improved according to experts' judgment, Students who are the samples were actually show a critical thinking attitude in reviewing the aspect of this learning media. In addition, the background of students who have used various advanced technologies makes it possible to criticize a newly developed technology by comparing other advanced technologies they have used. However, every student's input and response are constructive and become the main consideration for improving this learning media in the future.

## **5.2 Implication**

Based on the research finding, this research produced Chavabot learning media that can facilitate student critical thinking in earthquake and mitigation topic. The Chavabot learning media comes with compatibility for the

smartphone user. There are many interactive buttons that become the keyword for direct the user to the requested command. Chavabot contain multimedia such as picture, video, audio, and animation to show the material of earthquake and mitigation. Furthermore, a guidebook is also provided for supporting accessibilities. This learning media can be a supporting medium for learning and can become research material for other researchers. Similar learning media can also be developed with different topics.

### **5.3 Recommendation**

Based on the research finding, there are some recommendation regarding the development of 'Chavabot' as a learning media that can facilitate students critical thinking in earthquake and mitigation topic. The recommendations were addressed to other researchers and teachers, who have more opportunities to influence how learning media are developed in the future for the teaching and learning environment. The following is a description of the recommendations:

For other researchers, at the analysis stage, a more in-depth analysis is needed which includes the student's background in experience using digital media or technology so that newly developed media such as Chavabot learning media will be accepted in accordance with students' knowledge of technology and digital learning media. Students who have a broad background in experience using technology, even if not directly teach at school, will have a high enough rating standard to assess instructional media that are still relatively new to be developed. In addition, the selection of data collection subjects also needs to be considered because the characteristics of students in each school are different, such as students in public schools and students in international schools who tend to be diverse and have various cultures. For the further development, Chavabot learning media can still develop in so many ways with other coding medium or even other software that easier to use. However basic coding 101 is still needed to develop chatbot and collecting data from chatbot. The selection of a particular learning model as a reference in making the flow of learning media interaction greatly facilitates the design and development process. As for further research, testing products in the classroom by analyzing students' abilities before and after

using learning media, as well as carrying out deeper analysis of test results and feedback is highly recommended.

For teachers, Chavabot learning media can be considered as a learning media that can facilitate students critical thinking in earthquake and mitigation topic. However, there are still some materials and critical thinking aspects that are better to explained and trained directly to students. Suppose the teacher wants to implement the application, monitoring strategies in the lesson plan are needed to be considered more so that students are in pace for learning and not wasted time to play other option in the learning media before reached the learning goals.