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The Development of FunLABS Android-Based Application Using Unity Software as Learning Media to Explore Students' Motivation on Acid, Base, and Salt Topic

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ABSTRACT The lack of digital media to support middle school chemistry learning needs further expanded. Hence, an Android application as a learning media on acid, base, and salt topics was needed. This study aims to develop FunLABS (Fun Learning Acid, Base, and Salt) android-based applications. This study used a DDD-E model of development as a research method, and it consists of deciding stage, designing stage, developing stage, and evaluating stage. The deciding stage begins with analyzing the content and the software developed. The design stage consists of drawing a flowchart and the storyboard. Then, in the developing stage, the application was developed based on the previous stage. The last is the evaluation stage, which involves three expert judges, three science teachers, and forty students chosen to review the application by convenience sampling. The results from the expert's judgment show an average score of 3.54. The results from teachers show an average score of 3.49. The results from students show an average score of 3.51. The profile of students' motivation score after operating the FunLABS Application is 77.87% which is described as good motivation. Hence, the results from the experts, science teachers, and students showed positive feedback, and the application was completely revised. The FunLABS Android application can be used in the learning activity to explore students' motivation on acid, base, and salt topics.

Keywords Acid-Base and Salt, Android-Based Application, Students' Motivation

1. INTRODUCTION

Rapid technological development at this time has affected students to experience addiction which causes them to be unable to escape for a long time from the gadgets they have. In addition, the level of needs of students towards gadgets is also higher than that of textbooks. Other evidence of student addiction to technology can be seen from students' interest levels in the games, which are pretty high (Djamas & Ramli, 2019).

Learning science using technology is a new challenge that must be faced by the educational sector today. However, we found some difficulties faced by teachers and students. The difficulty experienced by teachers in combining learning material using technology, in this case, is a learning application (Rasheed, Kamsin, & Abdullah, 2020). Based on the results of observations found in the field, most teachers are still unfamiliar with Android-based learning media, specifically how to use it or make it. Most teachers in Indonesia only use existing learning media, not because of the government's insistence to further develop classroom learning but because of the lack of facilities provided. Niess (2005) stated that learning about subject matter with technology differs from learning to teach subject matter with technology.

Preliminary study results at one of the junior high schools in Bandung are known that the school has never used Android as a learning medium. However, Android has been used in general by learners and educators. In addition, classroom learning is still focused on educators, so there are participants educated who are bored, sleepy, and unconcerned. This condition causes motivation to learn low learners, thus impacting the cognitive achievement of learners. Sanjaya (2009) states that underachieving learners are not caused by their lack of abilities but because they are not the presence of motivation to learn, so participants do not try to make the whole ability. For that, creativity is needed by educators in the learning process, starting from

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goal setting, learning design, and utilization of learning media up to the grading system. The use of Android-based media can increase learners' motivation and cognitive achievement. As Forment & Guerrero (2008) said, mobile-based media is flexible and repeatedly usable according to readiness and the learner's will. Repeated use or learning with frequency height can improve students' learning achievement.

Making the game is very important, especially in learning, because it will improve the learning outcomes and the student's involvement (Eseryel, Law, Ifenthaler, Ge, & Miller, 2014). One of the technological developments that are currently in demand by many people is smartphone-based Android. Because smartphones are easier to use, so they have an open operating system that allows users to add various applications (Prasetyo, Ikhsan, & Sari, 2014). This educational game can be very motivating while still maintaining or even improving the effects of education on the students (Virvou, Katsionis, & Manos, 2005).

Chemistry learning cannot be separated from the definition of learning and chemistry itself. Chemistry is the science of searching for answers to what, why, and how natural phenomena related to the composition, structure and properties, changes, dynamics, and energetics of substances (Hutagaol, 2016). There are two points related; the chemical cannot be separated, chemistry is the product (chemical knowledge in the form of facts, concepts, principles, laws, and theories), and chemistry is the process of scientific work (Mulyasa, 2006). Several factors influence success in achieving the chemistry learning objectives. For example, teaching and learning strategies, methods, and approaches to teaching and learning resources or learning media.

Research from Fauzia (2017) found that one of the factors that cause chemistry not to be interesting is the learning process due to the media used in learning chemistry: PowerPoint, worksheets, the internet, and a guidebook with practical methods. Thus, technology development, such as smartphones, is not yet used maximally in the education system as an instructional medium.

The concept of acid, base, and salt is part of chemistry closely related to everyday life, for example, in industrial chemistry, agriculture, health, and research in the laboratory. In acid, base, and salt materials usually, students are required to memorize them without applying them in everyday life (Drechsler & Van Driel, 2008). The difficulties of students applying acid, base, and salt materials in everyday life demand that teachers be creative and innovative, one of which makes a media of learning (Sari, Anjani, Farida, & Ramdhani, 2017). The growing technology demands teachers to be able to use technology to create and develop learning media following technological developments.

Learning activities will be practical when students have prior knowledge (Roschelle, 1997). Thus, the topic focused on in this research is acid, base, and salt because it is familiar to students, and there are many examples of acid, base, and salt in daily life. Using an android-based Application as a learning media, the teacher will facilitate students to combine and discover their prior knowledge with the current knowledge to achieve final understanding. For the learning process to run smoothly, the learning strategy is equipped with games to invite students to discover the principles and concepts of the topic being learned for fun (Ardiyati & Dasilva, 2020).

The outcomes of students' learning in chemistry subject are considered to be not yet satisfying. Many students still experience some difficulties in studying chemistry at school (Sirhan, 2007). They view chemistry as a difficult, complex, and abstract subject requiring exceptional intellectual talent and a solid understanding (Cardellini, 2012). Students' difficulties in understanding the concept of chemistry, or science in general, are revealed in the 2015 PISA (Program for International Student Assessment) results. In the field of science, Indonesian students are in the rank of 64 out of 70 surveyed countries (OECD, 2016).

Chemical learning on acid, base, and salt materials can be improved if the teacher uses suitable learning media (Sari et al., 2017). Hence, an Android application was needed to explore students' understanding of acid, base, and salt topics. The lack of digital media to assist junior high students in learning chemistry should be more developed. Android-based application as a learning media on acid, base, and salt topics is intended to make students' knowledge stored in long-term memory and make the knowledge constructed by students independently will become more meaningful for them.

The previous research is already developed an Android application to help students learn chemistry. Hamdani, Prima, Agustin, Feranie, & Sugiana (2022) developed Android-based interactive multimedia to enhance critical thinking skills in learning matters. The study results indicate that students' critical thinking skills improve after applying Android-based interactive multimedia. Linda, Sulistya, & Putra (2018) also researched to develop an interactive e-module named Chemistry Magazine, which has two editions: ionic equilibrium and pH of buffer solution and solubility equilibrium. Applying research and development study design with the Plomp model, assessment and suggestion by the validator team on material substance aspect, instructional design, display (visual communication), and software utilization using validation sheet is in the valid category. Eliyawati, Agustin, Sya'bandari, & Putri (2020) also researched to develop an Android application named SmartChem to explain multiple representations of acid-base chemistry. The results show that some parts of the SmartChem media needed to be revised, especially in linking submicroscopic-level content

with symbolism. The low-achievement group was more concerned with technical features, while the higher-achieving group appreciated the content and learning experience.

However, none of the three studies above developed Android applications as learning media on acid, base, and salt to explore students' motivation. Besides that, studies rarely developed an application that combines virtual experiments and real-example experiment activity. The lack of digital media, which can be easily accessed through Android application to assist junior high students in learning acid, base, and salt, need to be more developed. For those reasons, this study aims to develop FunLABS (Fun Learning Acid, Base, and Salt) Android-based application to explore students' motivation.

2. METHOD

2.1 Research Method

The method that was used in this research is the developmental research method. Development research focuses on a given instructional product, program, process, or tool (Richey & Klein, 2014). It is addressed in product design and development, and evaluation (Richey & Klein, 2014). This research method is suitable for the objectives of this research, which is to develop a FunLABS android-based application. The method can describe the development process of the instrument and application in this research and analyze the readability of the application later on.

This research used the DDD-E (decide, design, develop, and evaluate) development model adopted from Ivers & Barron (2014). There are four stages of development; (1) Deciding stage consists of determining the project goals and brainstorming the content. (2) Designing stage consists of drawing a flowchart, specifying the screen design, and creating a storyboard. (3) Developing stage consists of constructing the research instrument and the project's development, compiling any source of images, video, graphics, and script. (4) Evaluating stage consists of validating the project to gain a recommendation from experts and users.

The researcher created the FunLABS android-based application in an Android package or APK using Unity software on the computer. FunLABS android-based application can be accessed from any Android operating system device. Supervisors will supervise the final development of the FunLABS android-based application before the experts judge from chemistry content, design, and implementation of students' motivation sub-aspects in the application. After FunLABS goes through several revisions and suggestions, the application will be brought to the science teachers and students for review and recommendations.

The scheme of the research procedure stages is shown in Figure 1.

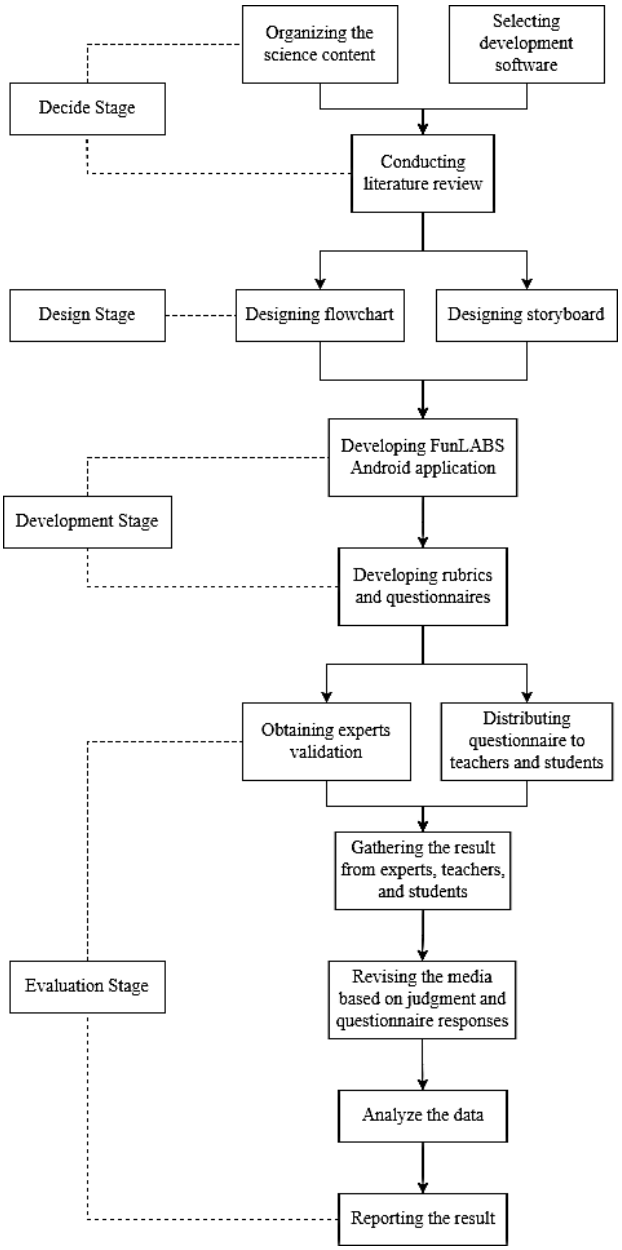


Figure 1 Research Procedure

2.2 Participants

This study's population is three experts to validate the application. They will validate the application in the chemistry content, design, and implementation of students' motivation sub-aspects in the application. Convenience sampling was used to select respondents to evaluate the FunLABS android application. Three science teachers and forty 8th-grade students from a private lower secondary school in Bandung will be used for the research subject.

2.3 Research Instrument

The data was collected in the form of rubrics from experts and questionnaires from the teachers and students. The experts' judgment rubric used in this study was the rating scale. This rubric was used to validate the quality of the FunLABS Android application. This rubric consists of three indicators: chemistry content, design, and

implementation of students' motivation sub-aspects in the application. The content and design rubric were adapted from the Multimedia Mania – Judges' Rubric (Vasu, Stedman, Lambert, & Bean, 2004). Implementing the students' motivation subskills rubric was adopted from SMTSL (Students' Motivation Towards Science Learning) (Tuan, Chin, & Shieh, 2005). The rubrics use a scale from 1 to 4 to determine the quality of each aspect, and it has criteria for each scale. The rubric also consists of blank spaces for feedback and suggestion.

The teachers' questionnaire also uses a rating scale. This questionnaire was used to validate the quality of the FunLABS Android application. The questionnaire was adapted from the Technology Acceptance Model (TAM) and other relevant studies. This questionnaire consists of four indicators: curriculum, user interface, intention to use, and implementation of students' motivation subskills in the application—the questionnaire assessment using the Likert scale. The scale is 1 to 4 (strongly disagree – strongly agree) to determine the quality of each aspect.

The students' responses questionnaire also uses a rating scale. This questionnaire was used to validate the quality of the FunLABS Android application. The questionnaire was adapted from the Technology Acceptance Model (TAM) and other relevant studies. This questionnaire has five indicators: perceived usefulness, ease of use, user interface, learning experience, and intention to use—the questionnaire assessment using the Likert scale. The scale is 1 to 4 (strongly disagree – strongly agree) to determine the quality of each aspect.

3. RESULT AND DISCUSSION

The results consist of the steps of FunLABS development, experts' judgment toward FunLABS, teachers' responses toward FunLABS, students' responses toward FunLABS, and the profile of students' motivation after operating FunLABS.

3.1 Development Steps

Decide Stage

The first stage of development is deciding stage. In this stage, the researcher decides on the software used to develop the FunLABS Android application and the chemistry topic raised in this study.

The FunLABS Android application was developed using Unity Software. Unity Software is a premiere software for developing the FunLABS Android application. The minimum requirement to run Unity 2019.4 smoothly is Windows 7, 10, or 11 with x64 architecture, DX10 – DX12 GPUs, 4 GB of RAM, and 3 GB of available storage.

The topic is restricted by the Indonesia National Curriculum 2013's core competence numbers 3 and 4 and basic competence numbers 3.3 and 4.3. The acid, base, and salt topic was used in this research as the main idea of the FunLABS Android application.

Design Stage

The second stage of development is the designing stage. In this stage, the researcher designs the FunLABS Android application's flowchart and storyboard.

Development Stage

The third stage of DDD-E is the development stage. The researcher developed the Android application based on the deciding and designing stages in this stage. The results of the application are shown in Table 1.

Table 1 Application results

Scene		
		

Table 1 Application results (*Continued*)

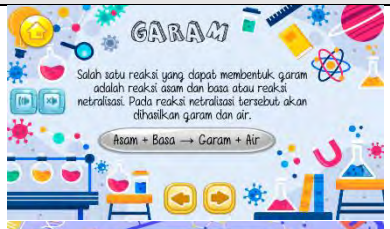
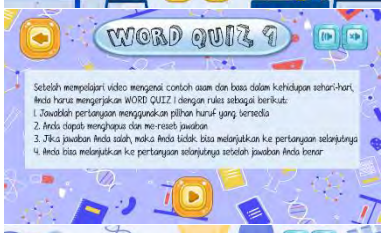
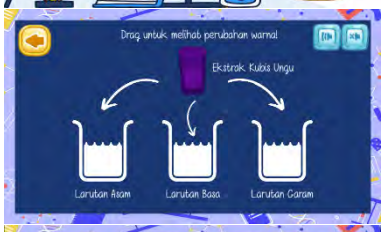
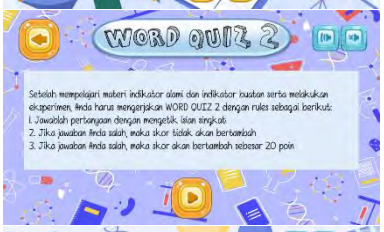
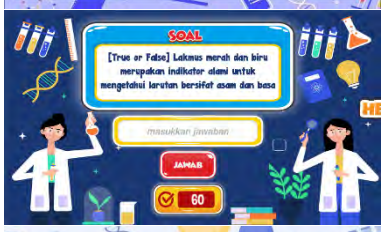
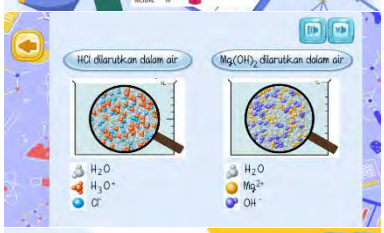
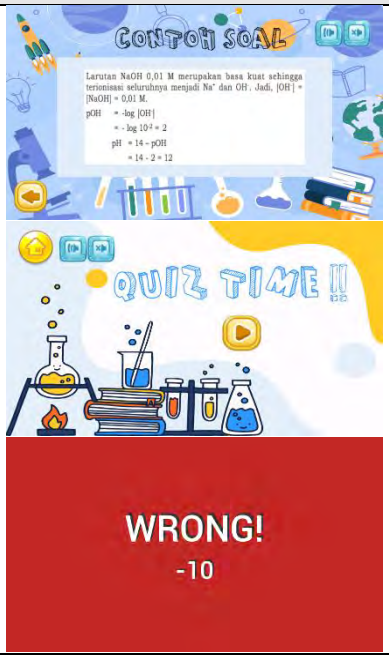
Scene		
		
		
		
		
		
		
		
		

Table 1 Application results (*Continued*)

Scene		
		

The Characteristics of FunLABS Based on Students' Motivation Sub-Aspects

1. Self-Efficacy

This aspect exists before the students take the game and the quiz; they have choices whether they will start the game and the quiz because they believe in their ability to perform well in science learning tasks, or they will go back to the previous scene to learn the materials again. Also, at the end of the game and the quiz, the students have a choice of whether they will retry the game and the quiz.

2. Active Learning Strategies

This aspect exists in the video of acid, base, and salt examples because the students have prior knowledge since it is related to daily life. This aspect also exists in the real-experiment example because previously, they have tried to explore the virtual experiment. From these activities, the students take an active role in using a variety of strategies to construct new knowledge based on their previous understanding.

3. Science Learning Value

This aspect exists in the word quiz game and the simple experiment activity. Students can acquire problem-solving competency, experience inquiry activity, stimulate their thinking, and find the relevance of science in daily life. They will be motivated to learn science when they can perceive these essential values.

4. Performance Goal

This aspect exists if the teacher as an instructor encourages students to actively participate during the science learning, not only giving them instruction to operate the application and learn independently. Other than that, in the final quiz, there are scoring and time limitations, so the students can compete with other students and get attention from the teacher, then the student's goals in science learning will be achieved.

5. Achievement Goal

This aspect exists in the scoring after the quiz. When the students get a high score, they feel satisfaction as they increase their competence and achievement during the learning.

6. Learning Environment Stimulation

This aspect exists in the basic competence and learning objectives because the curriculum learning environment surrounds students. Besides that, teachers' teaching and pupil interaction will influence students' motivation if the teacher encourages students to participate in science learning using the FunLABS application actively.

Evaluation Stage

The evaluation is the last stage in the DDD-E model of development. The researcher must evaluate the Android application based on the experts' judgment review. After it has been revised, the application is carried out to the science teacher and junior high school students to review based on the questionnaire.

3.2 Expert Judgment Results

Three experts validated the Android application. The result of the expert's judgment can be seen in Table 2. The average score for the content varies from 3.33 to 4.00, and the deviation standard varies from 0.00 to 1.15. The branching and interconnection of materials aspects are pretty good but require revision because some concepts are misunderstood, but it all got fixed. The curriculum alignment and evidence that objectives were met are pretty good and require a little revision because there are no

Table 2 Experts' judgment results

Indicator	No	Aspect	Average Aspect	Average Indicator	Deviation Standard
Content	1	Organization	3.67	3.52	0.58
	2	Branching	3.33		1.15
	3	Curriculum alignment	3.33		0.58
	4	Evidence that objectives were met	3.33		0.58
	5	Depth & breadth of project content	4.00		0.00
	6	Subject knowledge	3.67		0.58
	7	Interconnection of materials	3.33		1.15
Design	8	Technical	3.33	3.60	0.58
	9	Navigation	3.33		1.15
	10	Completion	3.67		0.58
	11	Screen design	4.00		0.00
	12	Use of enhancements	3.67		0.58
Implementation of Students' Motivation Sub-aspects in The Application	13	Self-efficacy	3.33	3.50	1.15
	14	Active learning strategies	3.33		0.58
	15	Science learning value	3.00		1.00
	16	Performance goal	4.00		0.00
	17	Achievement goal	3.67		0.58
	18	Learning environment stimulation	3.67		0.58

competence and learning objectives stated in the application, but it all got fixed. The organization and subject knowledge aspects are good and do not require any revision. The depth & breadth of the project content aspect is very good and did not require any revision. Overall, the content of the FunLABS Android application is good, with a total average score of 3.52. These results align with Putra, Asi, Anggraeni & Karelius's (2020) research that the Android application got a good result on content quality, which means the application is appropriate for learning. According to Ozdamli & Cavus (2011), content is a fundamental component of mobile learning.

The average score for the design varies from 3.33 to 4.00, and the deviation standard varies from 0.00 to 1.15. The navigation aspect is quite good, but some errors are experienced by one of the judges. Also, it was pretty difficult to drag and drop the litmus paper in the experiment activity, but it all got fixed. The technical aspect is quite good and requires a little revision because the video in the application cannot be run, but it all got fixed. The completion and use of enhancements aspects are good and did not require any revision. The screen design aspect is very good and does not require any revision. Overall, the design of the FunLABS Android application is good, with a total average score of 3.60. The design results align with Saputra, Gürbüz, & Haryani (2021), which got a good score on the application's appearance, which means the application satisfied the users and is ready to be used.

The average score for implementing students' motivation sub-aspects in the application varies from 3.00 to 4.00, and the deviation standard varies from 0.00 to 1.15. The science learning value aspect got an average score of 3.00 and a deviation standard of 1.00 because it has not appeared in large portions of this application. The self-efficacy aspect got an average score of 3.33 and a deviation standard of 1.15 because there are limitations of features that support self-efficacy. The active learning strategies aspect got an average score of 3.33 and a deviation standard of 0.58 because some concepts were misunderstood, but it all got fixed. The achievement goal and learning environment stimulation aspects got an average score of 3.67 and a deviation standard of 0.58, indicating it is good and did not require any revision. The performance goal aspect got an average score of 4.00 and a deviation standard of 0.00, indicating it is very good and did not require any revision. Overall, implementing students' motivation sub-aspect in the FunLABS Android application is good, with a total average score of 3.50. The results are in line with Rusman, Kurniawan, and Riyana (2012); one of the functions of the learning media is to awaken the attention and motivation of learners and can improve students' learning outcomes.

Overall, 3.54 is the average of all experts' judgments. According to Aulia (2014), the application is declared valid with good categories and worth applying for learning activities, and several aspects might be enhanced. Based on the experts' judgment score and feedback, the application has been revised regarding branching, interconnection of materials, curriculum alignment, evidence that objectives

were met, navigation, and technical before it comes to the science teachers and the students.

As a follow-up to the experts' suggestions, the revisions are shown in Table 3. Furthermore, the developer can learn in the future how to make the application improve.

3.3 Teacher Responses Toward FunLABS

After the application got the experts' judgment review, it was brought to the science teachers. Three science teachers test the application and fill out the questionnaire. The questionnaire contains 17 statements with a scale of 1 – 4 (strongly disagree – strongly agree). The responses are shown in Figure 2.

Based on Figure 1, 3.49 is the average of all teachers' responses, which is good. Hence, the FunLABS Android application is ready to be applied in the learning activity, and some aspects can still be improved. Besides the results based on the questionnaire, the teachers give recommendations to improve the FunLABS Android application quality. It is described below:

"The visual appearance is very helpful so it is interesting, but there are some slides that difficult to find back button etc., because it is vague with the background."

The suggestion can be accepted because the application's background is quite crowded. Other suggestion is stated below:

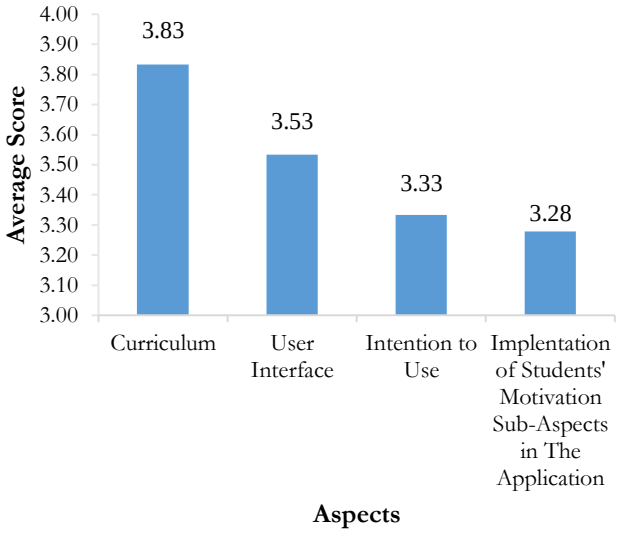


Figure 2 Teachers' Responses toward FunLABS

Table 3 Application revision based on experts' judgment

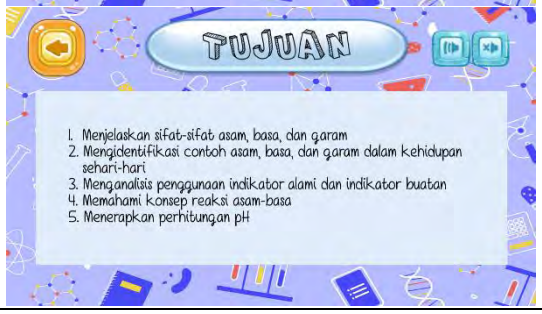
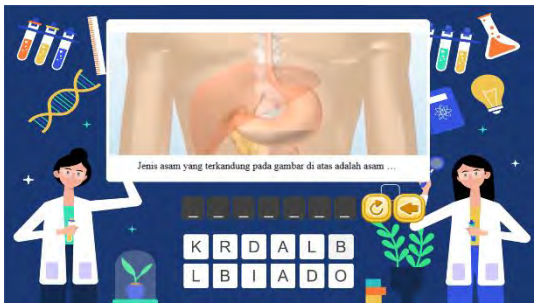
Scene	Description
	Added by exit button and volume on/off setting
	The competence scene was added
	The learning objectives scene was added

Table 3 Application revision based on experts' judgment (*Continued*)

Scene	Description
	The source of the pictures and video in the application was written
	The question of the Word Quiz 1 was revised to fix misconception
	The misunderstanding on Arrhenius Theory materials was fixed

"For the experiment which uses litmus paper, when it is dipped, the paper changes its color, but when it is lifted then go back to the original color."

Another recommendation from other judges is:

"The media is cool, but for the natural indicator experiment, when the indicator has not been dragged, but our hands have touched the media, it has changed its color. On the contrary, when it has been dragged and has entered the beaker glass, it does not change its color."

Those suggestions also can be accepted. The experimental activities in the application are indeed less than perfect because of the limitation of the researcher's capabilities. However, the developer can learn in the future how to make the experimental activities in the application better.

3.4 Student Responses toward FunLABS

After the application got the experts' judgment review, it was brought to the students. Forty students test the application and fill out the questionnaire. The questionnaire contains 16 statements with a scale of 1 – 4 (strongly disagree – strongly agree). The responses are shown in Figure 3.

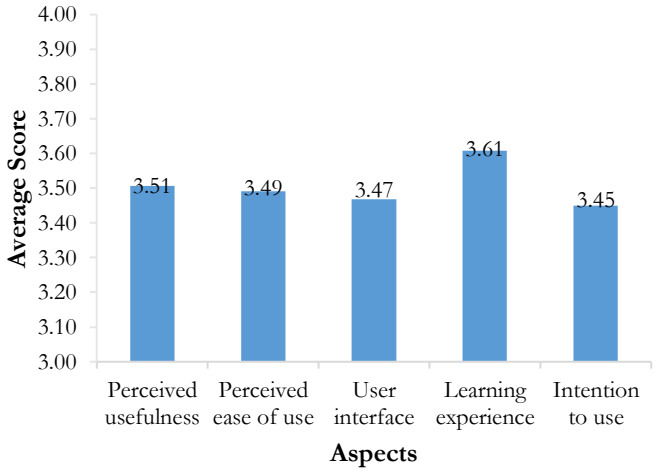


Figure 3 Students' Responses toward FunLABS

Figure 2 shows that 3.51 is the average of all students' responses, which is good. Hence, the FunLABS Android application is ready to be applied in the learning activity, and some aspects can still be improved. The students also give some comments and recommendations for the

Table 4 Application revision based on students' responses

Scene	Description
	The color composition of the text was revised
	The font size of the button was revised

FunLABS Android application. The comments and recommendations are described below:

"The application is exciting. I don't mind to answer the practice questions and use this application for learning. The explanation of acids, bases, and salts in the game is complete, so I can understand the material well. I think the game is already good, there is no shortage of it."

The comment shows good feedback. Another suggestion is as follows:

"The application is good, and the material is also complete and easy to understand. For the improvement, maybe you can add other features that make the application more attractive and make students feel comfortable learning."

From this suggestion, the students demanded other features of the application. Due to the limitation of the Unity software and the developer's knowledge, it cannot happen soon, but it can be provided later. The last suggestion is described as follows:

"The application is already good, I like the theme taken, the colors and the fonts are cute. The material is also complete and the examples given are very helpful for learning. However, the font is a bit too big and too fit the button, for the color is also better equated with the outline color for better color composition. Then, it's also better if the backsound continues every time the scene changes, not repeatedly."

As a follow-up to the students' suggestions, the revisions are shown in Table 4. Furthermore, the developer can learn in the future how to make the application improve.

3.5 The Profile of Students' Motivation after Operating FunLABS

To measure the students' motivation after operating the FunLABS Android application, the student's motivation toward science learning questionnaire is used. The questionnaire is given after the treatment to profile the students' motivation. Forty students test the application and fill out the questionnaire. The questionnaire contains 35 statements with a scale of 1 – 4 (strongly disagree – strongly agree). It comprises six sub-aspects: self-efficacy, active learning strategies, science learning value, performance goal, achievement goal, and learning environment stimulation. The summary of students' motivation after operating the FunLABS Application is shown in Table 5.

From Table 5, we can see the result of the student's motivation sub-aspects. Self-efficacy is described as lowest at 75.80% because, based on the observation, most of the students have not experienced learning using Android-based applications, so they feel that the task given by the teacher throughout the learning phase is very challenging. They need to master the media used in the learning phase before fulfilling the tasks. The result of this research, in line with Chen (2014), revealed that the role of technology as online learning media used in teaching-learning instruction could rank their self-efficacy as quite moderate. Another study shows that personal experiences are the most critical factor in predicting students' self-efficacy (Yurt, 2014) because those students perceive and construct their knowledge (Retnowati & Aqiila, 2017).

The percentage of students' performance goal sub-aspects is highest at 81.09%. According to Sastradika, Iskandar, Syefrinando, & Shulman (2021), the developed

Table 5 Summary of students' motivation profile after operating funlabs android application

Sub-aspects	Mean	Percentage	Description
Self-efficacy	3.03	75.80%	Good
Active Learning Strategies	3.04	76.02%	Good
Science Learning Value	3.16	78.88%	Good
Performance Goal	3.24	81.09%	Very Good
Achievement Goal	3.11	77.63%	Good
Learning Environment Stimulation	3.11	77.81%	Good
Average	3.11	77.87%	Good

media provides opportunities for students to learn independently, compete with other students, and feel learning through animation media can increase their competency and achievement. The application of Android-based learning media can encourage students to understand acid, base, and salt topics. The FunLABS Android application also provides several menus, instructions for use, materials, examples, and exercises. The application makes students easier to understand the concept of acid, base, and salt and facilitates teachers and students to apply and utilize technology in learning to reduce misconceptions.

This result is also in line with a study by Hamdan and Ben-Chaban (2013), which discussed improving students' personal skills and performance using mobile learning applications. They performed their experiment at UAE University, using IT course students, and found that mobile learning technology can enhance student performance in the educational process. Learner performance will be enhanced with the interaction between learners and mobile applications. The researchers also found that a mobile learner's performance will positively affect learners' behavioral intentions to use mobile learning applications (MacCallum, 2009).

4. CONCLUSION

The FunLABS Android application can be developed through four stages. The first stage is deciding stage. In this stage, the researcher analyzes the content and the application used for development. The second stage is the designing stage. In this stage, the researcher starts making a flowchart of the application and a storyboard. The third stage is the development stage. In this stage, the researcher started to develop the application based on the deciding and designing stages, and all need to be precise. The fourth stage is the evaluation stage. In this stage, the application was brought to the expert judgment to be reviewed. After that, the application was revised based on the expert and reviewed by teachers and students. The final revision is based on the teachers' and students' responses to the questionnaire.

The application got a review from three experts judgment. The average for all indicators is 3.54, which is good, indicating that the FunLABS Android application was ready to be reviewed by teachers and students after it was revised in some aspects. The application got a review from three science teachers. The average of all scores is 3.49, which is good. The students also give a review regarding the application. The average score of all indicators is 3.51, which is good, indicating the FunLABS Android application is ready to be used in the learning acid, base, and salt topic after some aspects were revised. From the student's motivation profile, the students' motivation questionnaire score after operating FunLABS Application is 77.87% which is described as good motivation.

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