

Application of Creatures Variety Study for 2nd Grade

W Wartika* and N Prahasdito

Fakultas Teknik dan Ilmu Komputer, Universitas Komputer Indonesia, Indonesia

*wartika31@yahoo.co.id

Abstract. School is a formal educational institution which systematically control educational environment to conduct teaching and learning activities. In the implementation of learning process, teachers have opportunities to be more creative and innovative. For instance, the teaching and learning activities use interesting and interactive media or teaching aids, such as an application of multimedia learning in science subject. With the help of the application, it can help students to be more active and interested in learning science. The purpose of this study is to know the need variations of models and learning media, besides outdoor learning in Elementary School. Students also tend to be passive and would rather ask friends than the teacher. The research method of the study is object-oriented programming approach and the development method is prototype. System planning is described using use case diagram, scenario use case, activity program, and sequence diagram. Meanwhile, database system planning used class diagram, object diagram, deployment diagram, and component diagram. The study is supposed to help in science learning process, so that the students are more interested in learning. Suggestions for further study is this learning application of the living thing diversity can be created in the form of android, in which accessed through gadget.

1. Introduction

Nowadays, technological developments have grown rapidly, especially Adobe Flash-based applications which is widely used in various fields including education [1]. Various materials can be used in Adobe Flash applications [2]. School is a place where learners get a conducive learning. In the implementation of teaching and learning process, teachers have the opportunity to be more creative and innovative. Learning activities in the classroom are expected to be more interactive because a lot of knowledge that can be obtained from various media [3]. Educators should be able to be more creative in delivering the materials using multimedia because learners are more interactive of technology, so that teaching and learning activities take place dynamically [4]. In science learning, it needs an approach that can generate motivation of learners, especially for materials with content and memorization such as material diversity of 2nd grade elementary school life. This topic is very important lesson for children in understanding the diversity of living things around them. Through this lesson, they can know the characteristics of animals, plants, habitats, benefits and soon [5]. Usually, material on the diversity of living things is learned from textbooks in schools. However, this is less likely to engage children comparing with learning by using other media because children tend to focus less on learning if using only textbook media. To attract the interest of children in learning, it needs to be provided media aids or interesting learning methods such as using tools based on Adobe Flash applications. It contains learning materials that are packaged in an interesting and interactive for children such as the addition of background sound and moving pictures. It is not only providing some



practice questions in various forms, but also providing some games that can attract attention and hone the knowledge of children like crossword puzzles that the question still has relevance to the learning materials taught.

The difference of this study is the researcher only focus on some example of species and plants for the materials. The grouping system of animals and plants is not based on the taxonomic system. This application can also be used at least for second grade students by using computer [6].

The purpose of this study is to know the need variations of models and learning media, besides outdoor learning in Elementary School. Students also tend to be passive and would rather ask friends than the teacher. Although the teachers use teaching aids to get students attention, but not all the students pay attention to them. This is because sometimes the teacher only uses 1 prop while there are 30 students. Therefore, it needs additional media that can make each child pay attention to their teachers. In addition, the school wants to take advantage of the facilities that have been maximized by the School that is Multimedia Lab [7-8].

2. Method

Research design in this paper researcher uses descriptive qualitative method. Creswell (2012) in his book mentions that one of the characteristics of qualitative methods is to investigate the problem or social phenomenon and develop it into specific thinking.

2.1. Types and Research Methods

2.1.1. Primary data source. The data was taken directly from respondent and then it given back to them. This research material was taken from Science subject second grade in Al – Ghifari Elementary School Plus which amounted to 30 students.

2.1.2. Secondary data source. Data obtained indirectly through other sources or from documents, either from teachers or syllabus.

2.2. Systems Approach Method

Researcher takes an object-oriented approach where the system will be created from a collection of objects that are in sync with real-world objects.

2.3. System Development

System development method used is Prototype method. Stages of Prototype method that researchers used are communication, rapid design, rapid design modeling, prototype formation and delivery of systems/software to the customers/users of the delivery and feedback.

2.4. Analysis and Design Tools

The researcher uses use case diagrams, use case diagrams, activity diagrams, sequence diagrams, class diagrams, deployment diagrams and component diagrams as a tool and design in this study. The tool and design are described below.

3. Results and discussion

3.1. System Analysis and Design

3.1.1. System planning. System design is one in developing stages of information systems that run into a new information system or update existing systems. This has function to maximize effectiveness resulting in a system that suits the needs. This stage is very important in determining whether or not the results of the design that has been done. So that the researcher creates a new system from existing ones. At this stage, it describes the design goals, the design of proposed procedures, interface design, testing and implementation.

3.1.2. *System Overview Proposed.* An overview of the design process that transforms from manual to computerized is usually learning a using text book which is now coupled with interactive multimedia media. This system is expected to facilitate educators and learners in learning process. It also can help schools to use multimedia lab facilities.

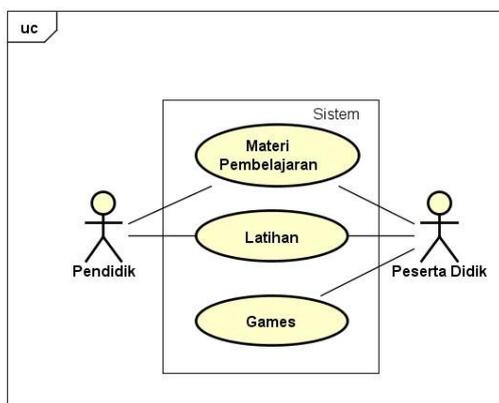


Figure 1. Use case diagrams proposed

3.1.3. *Software Implementation.* Implementation of software is required in the construction of the system to support the use of learning applications, the following software in use:

Table 1. Software implementation on design.

No	Software Type	Software Used
1	Operating system	Microsoft Windows 7 Ultimate 32-bit
2	Application development media	1. Adobe Flash Professional CS6 2. CorelDraw X7

Table 2. Software impact on schools.

No	Software Type	Software used
1	Operating system	Microsoft Windows 7 Ultimate
2	Media Application	Application of Life Learning Diversity

3.1.4. *Implementation of hardware.* In support of the development performance of this learning app, then the device:

Table 3. Hardware implementation on design.

No	Hardware Type	Hardware Used
1	Processor	Intel(R) Core(TM)2 Duo T5750 – 2.00 GHz
2	RAM	4 GB
3	VGA	2 GB
4	Hard disk	500 GB SATA

Table 4. Hardware implementation at school.

No	Hardware Type	Hardware Used
1	Processor	Intel(R) Core(TM)2 Duo T5750 – 2.00 GHz
2	RAM	2 GB
3	VGA	512 MB
4	Hard disk	128 GB SATA
5	Monitor	LCD 16”

3.2. Implementation interface (Screenshot)

3.2.1. *Intro interface implementation.* Figure 2. below is an Intro interface implementation. Featuring an opening video containing introductions of a learning character named "Wanda". Wanda will briefly explain what will be discussed in this learning app. When finished viewing this video, we can click the "Start Learning".



Figure 2. Intro interface implementation.

3.2.2. *Main menu interface implementation.* Figure 3. is the Implementation of the main menu interface. The view from the main menu after the first push button start to learn. This main menu shows three learning menus namely, materials, exercises and games. From each menu show different things.[9]



Figure 3. Main menu interface implementation.

3.2.3. *Learning Material Menu interface implementation.* Figure 4. is the Implementation of the Learning Material Menu interface. There are two sub-material in the main content which are animals and plants. Each of this sub-material has different content inside [10].

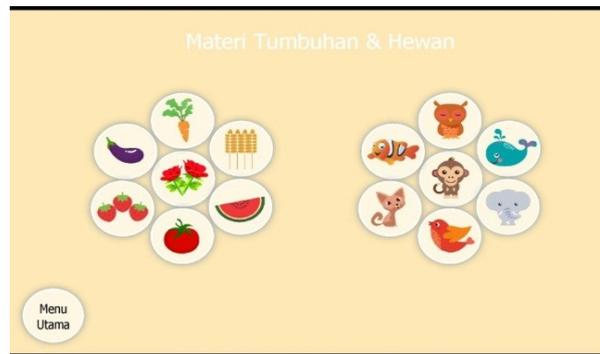


Figure 4. Learning Material Menu interface implementation.

3.2.4. *Exercise menu interface implementation.* Figure 5. is an Exercise Menu interface implementation. In this menu, there are 3 different problem exercises and there are 10 questions in it as well as the time of workmanship and scoring score of the exercises done.



Figure 5. Exercise menu interface implementation.

3.2.5. *Games menu interface implementation.* Figure 6. Implementation of the Games Menu interface. There are two different types of games. For the left side, there are types of crossword puzzle games to guess the answers from clue that have been provided. Meanwhile, for the right side, type of birds shooting games like in Nintendo which is also provided a scoreboard, the time and number of birds shot.



Figure 6. Games menu interface implementation.

4. Conclusion

The conclusion contains the answers of the research objectives. The things that have not be achieved in this study can be used as a suggestion for further research development. Based on the research that has been done through the stages of analysis, design, system development, testing and system implementation can be concluded as follows:

- Learning tools for the diversity of living creatures can help teachers in delivering science learning materials to learners.
- Learning tools for the diversity of living things can help learners to be more interested in learning and pay more attention to the materials provided by educators.
- It can utilize as well as maximize the facilities that have been provided by the School of Multimedia Lab with the existence of tools for learning applications of the diversity of living things.

The application of learning to the diversity of living things can be further improved in line with the evolving needs of the future as well as to reach the stage where it is even better for improving deficiencies in this system. Here are the suggestions from the authors for the development of this system. The researcher suggests that the application of learning the diversity of living things can be created in the form of android applications to be accessible through gadget. In addition, the children can learn wherever and whenever they want but still under the control of parents so that children are not addicted to play gadgets.

References

- [1] Burnham. John West, dan O'Sullivan. Fergus, "Mengembangkan Profesionalisme Di Sekolah", 4th ed, Kuala Lumpur : Attin Press Sdn Bhd, 2009
- [2] Wibawanto. wandah, "Desain Dan Pemograman Multimedia Pembelajaran Interaktif", 1st ed, Jember : Cerdas Ulet Kreatif, 2017
- [3] Supriatna. Jatna, "Melestarikan Alam Indonesia", 1st ed, Jakarta : Yayasan Obor Indonesia, 2008
- [4] Syaprillah. Aditia, "Buku Ajar mata kuliah hukum lingkungan", 1st ed, Yogyakarta : Deepublish, januari 2016
- [5] Karnita. Nia, dan Fitriyani. Eka, "Big Book Matematika & IPA SMP Kelas 1,2,&3", 2nd ed, Jakarta : CMedia, 2015
- [6] HWANG, J., LEE, K. I., Raeik, J. A. N. G., & Seongwoo, J. E. O. N. (2018). A Study on the Introduction of Total Natural Resources Management System Using the Environmental Conservation Value Assessment Map. *International Archives of the Photogrammetry, Remote Sensing & Spatial Information Sciences*, 42(3), pp. 45 – 90.
- [7] Syakur. Muhammad, "Aplikasi Pengelompokan Tumbuhan Dan Hewan Sebagai Media Pembelajaran Keanekaragaman Makhluk Hidup Untuk Anak-Anak Pada Ponsel Berbasis Android", S.T, Program Studi Teknik Telekomunikasi, Institut Teknologi Telkom, 2012
- [8] Syakur. Muhammad, "Aplikasi Pengelompokan Tumbuhan Dan Hewan Sebagai Media Pembelajaran Keanekaragaman Makhluk Hidup Untuk Anak-Anak Pada Ponsel Berbasis Android", S.T, Program Studi Teknik Telekomunikasi, Institut Teknologi Telkom, 2012
- [9] Kementerian Pendidikan Dan Kebudayaan Republik Indonesia, "Ilmu Pengetahuan Alam", 1st ed, Jakarta: Pusat Perbukuan, Kementerian Pendidikan Nasional 2017
- [10] Wahana Komputer, "Adobe Flash CS5 untuk membuat animasi kartun", 1st ed, Yogyakarta: Andi, 2010