e-Jas Module: Effort to Improvement The Environmental Care and Responsibility Character

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Abstract— This study aims to determine the students' responses toward the environmental and responsibility character through the use E-JAS edutainment module. The type of research used quasi experimental with one group pre test-post test design. Based on the results of data analysis showed that the students' responses toward E-JAS edutainment module were exist in very good category. There was an improvement of 47% environmental care characters as well as 52% improvement in the responsibility character in the intermediate category.

Keywords— module, edutainment, E-JAS, enviromental care, responsibility

I. INTRODUCTION

Indonesia is currently facing an environmental crisis. This can be seen from the various area damages that occurred from different regions in Indonesia. According to the report of World Resources Institute, Indonesia is on ranked 6th as the world's largest carbon emission country with total carbon emissions of 2.053 billion tons[1]. Based on IUCN Redlist data, there were 127 species of plants and 76 species of animals in Indonesia exist on the Critically Endangered category (Critical)[2]. The Blacksmith Institute and the Swiss Green Cross inserted the Citarum River in "Top Ten Toxic Threats in 2013[3]. Some cases that occur today, caused by human activities that do not care and are not responsible for the environment. If this is allowed to continue, it will have a negative impact on the survival of mankind. Therefore, as human beings should always keep the environment from all forms of destruction.

One way to protect and conserve the environment is through education. Hermawan declared that education had an important role in improving the quality of an environment[4].

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Through education, the danger of area damage can be known. This is in line with Rede opinions that both formal and non-formal education can reduce human activities related to environmental destruction[5]. Thus, education can be inspired by rational, critical, and creative thinking of the environment. The education level of community is higher so as well as their awareness and responsibility towards the environment. The education about environment needs to be planted early in order to minimize the influence of its damage created by human activities.

Drajat in Aziz, asserted that the cause of environmental damage is due to the contribution of environmental care and responsible characters that less than optimal[6]. This happens because schools are more focused on the cognitive aspect so that effective and psychomotor aspects are lacked attention. One of the important figures in the education field who can implement the environmental care and responsible character is the teacher. Professional teachers will always emphasize the character education to students.

Based on the observation result, the teacher still used the lecture method. Moreover, the teacher has not utilized yet the environment as the student learning source, and has not developed a learning module which can bring up the environmental care and responsibility character to students. While in the classroom learning implementation, students tended to sit and listen to teachers, not infrequently there were students who yawn or spoke by themselves when learning took place, they were less active in the classroom learning and many of them still did not want to keep the environment in their class. Thereby, one way to deal with these problems is to use the teaching materials in the form of modules.

According to Trianto that the success of a lesson depends on the teaching materials, which are appropriate and well-chosen[7]. As revealed by Daryanto that module is a teaching material packed intactly and systematically with aim of helping students to learn independently as well as in groups[8]. The main obstacle in using the module as teaching material is student's saturation. To that end, there should be the innovations from the modules which are suitable with the mandate of the 2013 curriculum thus the module can be a fun and interesting learning material for students.

According to Rede, the thematic lesson more emphasizes student activeness in learning so that students can obtain the direct experience by finding their own knowledge and skills that they have learned[9]. Through its experience, students can understand the concepts that they learned and connect them to the previous lesson concepts, before. While through the use of modules with the theme concept, students will become more active in the learning process as well as they have better understanding about the material because it is associated with daily life. The module is also packed with delightful concepts so that students are more interested and eager in the learning process. This enjoyable learning concept is known as Edutainment. Wanabuliandari, et al expressed that to overcome the problems related to learning that cause students less interested when learning in the classroom is by involving the edutainment elements which combine the education with entertainment then learning will be more joyful[10]. In addition, the developed module is packaged using E-JAS model. Alimah stated that the E-JAS model could provide experience in learning related to the development of rational thinking skill and personal, social, meta-cognition and cognition ability[11]1. The E-JAS learning is a learning that uses the environment as a learning resource. Therefore, through the use of E-JAS edutainment modules will provide meaningful learning through a direct experience that is enjoyable in order to cultivate environmental care and responsibility character.

This study aims to find out the students 'responses toward the E-JAS edutainment module and to know the improvement of students' environmental care and responsibility character. The benefits of this research were to improve the professionalism of teachers as educators who were able to plant the environmental care and responsibility character and provide information about the use of E-JAS edutainment modules as one way to implement those characters.

II. METHOD

In this study, the research method used the quasi-experimental type with one group pretest-posttest research design. Time and place of research implementation is done at Elementary School (SD) 2 Jati Kulon in March until July 2017. The population of the study was the fourth-grade students of Elementary School in Kudus Sub-district. The sampling technique used purposive sampling. The sample on this study was the fourth-grade students of Elementary School (SD) 2 Jati Kulon. Data collection techniques used non-test or observation. The research instrument used an observation sheet of environmental care and responsibility character. The data analysis technique used the normalized gain test in order to determine the improvement of those characters.

III. RESULT AND DISCUSSION

A. Research Result

The effectiveness test used to find the effectiveness of learning with the E-JAS edutainment module, so that learning

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with E-JAS edutainment module can be said effective. The observation result of environmental cares character at Elementary School (SD) 2 Jati Kulon can be seen in the following table.

TABLE I.   THE OBSERVATION RESULT RECAPITULATION OF ENVIRONMENTAL CARE CHARACTER

Criteria	Pre-test	Post-test
High Score	70	90
Low Score	40	60
Average	51,58	74,21

From table showed that the environmental care characters data in which the high score of pre-test was 70 and 90 for post-test. The low score of pre-test was 40 and 60 for the post-test. Whereas, the average score of pre-test was 51,58 and 74.21 for the post-test. Furthermore, the observation result of responsibility character at Elementary School (SD) 2 Jati Kulon can be shown in Table II below.

TABLE II.   THE OBSERVATION RESULT RECAPITULATION OF RESPONSIBILITY CHARACTER

Criteria	Pre-test	Post-test
High Score	62,50	93,75
Low Score	31,25	56,25
Average	45,07	73,68

Based on the data of Table II, the high score of responsibility character for pre-test data was 62,50 while the data of post-test was 93,75. The low score of the data of pre-test was 31,25, and 56.25 for post-test. The average score for pre-test data was 45.07 whereas 73.68 for the data of post-test. After getting the observation result data of both character at Elementary School (SD) 2 Jati Kulon then next step was to carry out the data analysis of research results.

To test the improvement of students' environmental care and responsibility character then the researchers used the normalized gain test in order to analyze the extent of improvement on those characters before and after the lesson. The test result for both characters can be shown in Table III below.

TABLE III.   THE NORMALIZED GAIN TEST RESULT ON ENVIRONMENTAL CHARACTER

Criteria	Students	Percentage
Low	5	26,30 %
Intermediate	13	68,40 %
High	1	5,30 %

Based on Table III, it is found that there were 19 students who got the highest improvement, 13 students had experienced the intermediate improvement, and five students had the lowest improvement. Furthermore, the percentage of each criterion

was obtained by the result of 5.30% students on the high criterion, 68.40% in intermediate criterion and 26.30% on the low criterion. The average score of the pretest results was at 52, while the post-test results was at 74. Therefore, the score rised grouply as 47% which means that there was an improvement of student environmental care character at the intermediate criterion. The result of the normalized gain test of the responsibility character is shown in the following Table IV.

TABLE IV.   THE NORMALIZED GAIN TEST RESULT ON RESPONSIBILITY CHARACTER

Criteria	Students	Percentage
Low	1	5,30 %
Intermediate	14	73,70 %
High	4	21,00 %

Based on the data of Table IV, it is found that there were four students who experienced the high improvement, and 14 students in the intermediate level and one student had the low improvement. Meanwhile, the percentage of each criterion was obtained by the result of 21.00% students on the high criterion, 73.70% in intermediate criterion and 5.30% on the low criterion. The average score of the pre-test result was at 45, and 74 as the result of post-test. Therefore, the score rised grouply as 53% in which there was an improvement of student responsibility character at the intermediate criterion.

B. Discussion

Based on the research results at the previous explanation, it can be stated that the students responded positively toward the use of E-JAS edutainment modules. The students' responses on the use of E-JAS edutainment modules categorized into the excellent level. E-JAS edutainment module was applied by principle learning of the nature roaming so that it differs from the usual learning process experienced by the students. Therefore, it makes students more interested in the learning process. Uno revealed that the use of the environment in a lesson can motivate students in the learning activities which are different from usual[12]. Alimah, et al mentioned that the utilization of the environment through the surrounding nature activities will provide a positive contribution in planting the environmental care and responsibility character. [13]

The result of the questionnaire of students' responses on the use of the module indicates that all students agreed that the module could improve the environmental care and responsibility character. 91% stated that the module was interesting and enjoyable of leraning media while 95% agree that module makes the lesson more active. Students were motivated to follow the learning by using E-JAS edutainment modules. Alimah, et al stated that through roaming activities will provide an opportunity for students to be more caring and loving of nature then students become motivated to protect the environment[14]. Wanabuliandari, et al stated that students felt

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more enjoyable in the process of learning activities by using edutainment approach [15].

The scores of student responses also showed that all students agreed that the module used was communicative and comprehensive, indeed had the attractive designs. While as 86% of students stated that the content of module presented in a coherent and clear manner. Therefore, the module had a positive effect on students' level of understanding, so as much as 95% of students understood the material. In outline, the module provided a response that through the use of the E-JAS edutainment module could help students easier to comprehend the learning materials and more active in learning. The reason behind it, the E-JAS edutainment module presented by incorporating elements of roaming activities that invite students to make observations and it packed in the enjoyable learning activities. Ardianti on her research declared that the use of modules can invite students to make observations, to engage in actively so the lesson becomes more meaningful[16].

The use of E-JAS edutainment modules helped students in making the material became actual or contextual as it shown that as much as 82% students expressed that the through module, the given lesson material became existent. As many as, 0% students disagree that the module does not help them in knowing the impact of environmental damage. 5% of them also disagree that the module does not help in environmental utilization activities whereas 14% disagree that the module does not make the students want to be a role model. Thus, it indicated that the E-JAS edutainment module could contribute positively to the improvement of environment and responsibility character.

From the result of student responses, it can be concluded that through the use of E-JAS module could be a tool in introducing the environment to students. The introduction of this environment is perceived by the students that had a positive impact on the environmental care and responsibility character. This is in line with the opinion of Hayati, et al that by utilizing the environment as a tool for learning allows students to show their interest of the environment[17]. Atmojo explained that through the provision of problems related to the environment will be able to help students in understanding the environment indeed their love and responsibility for the environment become better[18]. The result of students' responses showed that through the edutainment approach, the interest toward the learning and environment begins to be felt by the students. Edutainment itself was an enjoyable learning concept that can be done with demonstrations, role-playing, humor, and games.

Thematic learning is also linked to the module

development and perceived by students to have a positive impact in understanding the material indeed the learning becomes more meaningful. According to Novianto, et al in this learning type, students become more active because they are directly involved in the learning process then provide students with opportunities to connect their experiences and knowledge with the problems to be solved[19]. Design and packaging of a module perceived by the students as an important component. In other words, the innovative module will help students in the learning process. Niron, et al explained that to improve the quality of learning as well as to carry out reorganization activities in character education can be done by using the module[20]. Thereby, the use of E-JAS edutainment modules which perceived by the students had a positive impact, generally.

The average score result of environmental care and student responsibility character after the learning was higher than before. The analysis results on the environmental care character showed that from 19 students, there was one student who had the high improvement, 13 students in the intermediate level, and five students had low level of improvement. The percentage of each criterion was obtained by 5.30% of students on the high criterion, 68.40% in the intermediate level and 26.30% on the lowest level. The average score of the pretest results was at 52, and 74 in the posttest. Moreover, the score was increase as 47% in group indicated that there was an improvement in the intermediate category for environmental cares. While the analysis result of responsibility character showed that from 19 students, there were four students with the highest improvement, 14 students had intermediate improvement, and one student had the lowest improvement. Furthermore, the percentage of each criterion was obtained by 21.00% of the students on the high criterion, 73.70% in the medium criterion and 5.30% on the low criterion. The average score of the pretest result was at score 45, and the posttest result score was 74. As in group, there was an improvement of 53% students means that there was an improvement in the intermediate criterion from the responsibility character of the students.

The score improvement of the student environmental care and responsibility character is occurred due to the implementation of the E-JAS edutainment module in the learning activities. The application of E-JAS edutainment modules invites students to do activities directly in the environment. Ardianti, et al stated that learning in the immediate environment helps students to gain knowledge and experience then they can determine the right attitude about the environment[21]. Learning by involving the surrounding

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environment will provide an actual experience for students. This is in line with the opinion of Savitri, et al who stated that the learning through around nature will present the existent condition of activities thus it will increase students' knowledge in the various levels[22]. In other words, E-JAS edutainment module presents the actual learning situation for students, so they can determine the appropriate attitude toward the alive environment utilization. According to Alimah that one of the ways to provide direct experience to the students through the activities of finding, processing the information obtained and then took decisions as well as doing problem-solving activities is through the application of an Experiential model of Nature Exploration[23]. On its implementation, the EJAS model was conducted through several phases of exploration based upon the problem investigation activities on the environment, interaction through group learning activities, communication is done in a discussion, presentation, and reflection and also experiences activities were gained during the learning process. Through the investigation activities in the EJAS model students were invited to know the actual environmental conditions. Moreover, using the environment as a source of learning will provide a direct experience to learners, so it will be able to improve students' good behavior toward the environment.

In addition, the E-JAS edutainment module is equipped with enjoyable activities that made students did not feel bored in using this module in learning. In his research, Saepudin et al stated that positive responses from students were obtained through edutainment approach[24]. This is in line with Wanabuliandari, et al statement that through the implementation of mathematic edutainment learning accompanied by the enjoyable activities would give a positive influence in reducing the saturation level of students[25].

Based on the above explanations, after using the E-JAS edutainment module, the environmental care and responsibility character of student at Elementary School (SD) 2 Jati Kulon increased significantly. From the research data, it can be concluded that the students' responses to the E-JAS edutainment module in the very good category, thus there was an improvement of environmental care character through the use of edutainment module E-JAS, and as well as indicated in the responsibility character.

IV. CONCLUSION

In the development of E-JAS edutainment module, the researchers made a combination between edutainment, and E-JAS. Edutainment is an enjoyable learning concept that can be done through demonstration, role play, humor, and game so that students become more interested and eager in the learning process. The E-JAS learning was a learning that uses the environment as a learning resource and provides the students opportunity to interact within it. The phases in E-JAS model included exploration, communication interaction, and reflection. Therefore, the use of the E-JAS edutainment modules will provide meaningful learning through the actual experience and enjoyable activities in order to encourage the environmental care and responsibility character of the students. Based on the research result and discussion, it can be concluded that the student's responses to the E-JAS edutainment module existed in very good level in which there was 47% improvement of environmental care characters as well as 52% improvement of responsibility in the intermediate category.

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