The effect of local primacy-based comic media on students’ conservation attitudes

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Abstract. The purpose of this study was to analyze the influence of the implementation of local primacy-based comic media on students’ conservation attitudes. This research was a quasi-experimental that adopted and modified separate sample pretest-posttest designs. Two experimental schools, namely SDN 1 Gili Indah and SDN Teratak, West Nusa Tenggara, Indonesia were taken randomly with a total of 52 students. Data on student conservation attitudes was collected through questionnaires. The data were converted into percentages then analyzed using the paired and independent sample t-test. The results of this research showed that the implementation of local primacy-based comic media can increase students’ conservation attitudes (p<0.05) and there was no difference students’ conservation attitudes of the two observation schools (p>0.05).

1. Introduction

Comics are learning media that have storylines and contain interesting images [1] and they serve to convey certain messages as entertainment [2]. Comics are one of the alternative media used in learning [3]. Comics can make learning more interesting [4], make students more excited during the learning process [5], they can convey messages with pleasant and fun ways [6]. They also have strong visual and story elements as educational media, so comics are good to give to students as educational tools [7].

The results of the preliminary study indicate that the implementation of comic books in learning can improve cognitive and affective learning outcomes [8], critical thinking skills [9], activity and learning outcomes [10], science learning achievement [11], learning motivation [12], and reading skills of students [3]. The implementation of comic books is not only given to elementary school students [2, 13, 14], but can also be given to junior high school [15], high school [1, 5] and even universities students [8]. This is because comics have some advantages, namely have attractive visualization of images [2], and can convey information popularly and more easily understood [10].

Based on the advantages have by comic books as learning media as well as the results of research on the implementation of comics as learning media, the preparation of learning materials into comic books needs to be done so that materials can be well understood by students. The observation shows that the implementation of comic media in learning, especially for elementary schools in the province of West Nusa Tenggara, Indonesia is still not optimal. As a result, it is very difficult to find learning materials arranged into comic books as teaching materials for students. In addition, learning that promotes local primacy is rarely introduced to students, as a result they do not recognize and understand the local potential of their respective regions. Efforts to introduce local potential to students are important to do...
as foundation in providing understanding of conservation to students so they will be able to maintain the local potential possessed [16, 17].

The research conducted by [16] produced teaching material that was arranged into comic book contains the local primacy of NTB (West Nusa Tenggara) Province, namely the coral reef ecosystem. Coral reef ecosystems are assets not only for NTB Province but also for the Indonesian people [18]. Comic book that highlight the local primacy of this area need to be implemented in the learning process to find out whether the comic book are effective and can be used to improve students' conservation attitudes of coral reef ecosystems. This article outlines the results of the implementation of coral reef comic media for elementary school students in NTB Province and its effect on students’ conservation attitudes.

2. Methods

This research was a quasi-experimental research that adopted and modified the design of separate Sample Pretest-Postest Design [19]. This research used two experimental classes from two different schools, namely Gili Indah 1 Elementary School (SDN 1 Gili Indah), North Lombok representing schools located near coast and Teratak Elementary School (SDN Teratak), Central Lombok representing schools located far from coast. This division was done to see whether there were differences in the conservation attitudes of students in the two regions. The subjects of this study were 4th grade students with a total of 52 students. Before the comic media was given in learning, both classes were given a pre-test in the form of a student conservation attitude questionnaire about coral reefs. The next stage, the two experimental classes were given treatment using coral reef comic media and finally the students in each class were given a post-test.

Data collection used questionnaires adopted and modified from [20]. Questionnaire consists of three aspects of conservation, namely management, utilization and protection of coral reef ecosystems. Assessments has range of 1-4 scores, namely score 1 = strongly disagree, score 2 = disagree, score 3 = agree, and score 4 = strongly agree. The scores were changed into percentages [21] then analyzed using the paired sample t test [22] formula to see differences in the value of students' conservation attitudes between the pre-test and post-test for each school, while the independent sample t-test [23] was used to determine differences conservation attitude values between SDN 1 Gili Indah and SDN Teratak.

3. Result and Discussion

To find out the differences in conservation attitudes of students before and after treatment in each school analysis of paired sample t test which was preceded by tests of normality and homogeneity was carried out. The results of the normality and homogeneity test showed that conservation attitude data in both schools had a homogeneous variant (p value = 0.714>0.05) and were normally distributed (p value = 0.200 and 0.160>0.05) (Table 1). The results of the analysis of the conservation attitudes of students in SDN 1 Gili Indah showed a difference between before and after treatment (p value = 0.002<0.05). This revealed that the implementation of coral reef comic media had an effect on students’ conservation attitudes (Table 1). The same results were obtained in SDN Teratak which showed that the implementation of coral reef comics media had an effect on students' conservation attitudes (p value = 0.045 <0.05) (Table 2).

Table 1. Summary of Test for Normality and Homogeneity

| Variabel                                      | Normality Test (Kolmogorov-Smirnov) | Homogeneity Test (Levene test) |
|-----------------------------------------------|-----------------------------------|--------------------------------|
|                                               | Statistic | df | Sig   | Statistic | df | sig   |
| Students' conservation attitudes of SDN 1 Gili Indah | 0.106     | 29 | 0.200 |             |    |       |
| Students' conservation attitudes of SDN Teratak   | 0.155     | 23 | 0.160 | 0.136      | 50 | 0.714 |
Table 2. Summary Analysis of Paired Sample t tests

| Variable                  | N   | t    | df | Sig (2-tailed) | Standard Deviation | Std. Error Mean |
|---------------------------|-----|------|----|----------------|--------------------|-----------------|
| Pretest-postest           |     |      |    |                |                    |                 |
| SDN 1 Gili Indah          | 29  | -3.497| 28 | 0.002          | 7.16776            | 1.33102         |
| Pretest-postest           | 23  | -2.122| 22 | 0.045          | 8.94162            | 1.86446         |

The results of this study indicate that there are comic media influences on students’ conservation attitudes. The results of this study in line with some of the previous studies that applied comic books as learning media for elementary school students such as Muliarta [10] who reported that the implementation of comic books as learning media for fourth grade elementary school students increases student activity; comic books as media can improve the story reading skills of fifth grade elementary school students [13]; comic media can improve the learning achievement of fifth grade students who have deafness [11]; comics can improve students' critical thinking skills [9]; and comics can increase the learning motivation of fourth grade elementary school students [13].

The presence of the influence of comic media implementation on students conservation attitudes is thought to be caused by the comic media is easy to read and has visual appeal to readers especially for elementary school students who are still at the level of concrete operational cognitive development. According to Piaget, children at this level of cognitive development will experience high cognitive development, begin to use their senses to know, serialization logic operations and their classification thinking develop [24].

To find out the differences on students’ conservation attitudes based on different geographical locations, an analysis of independent sample t tests was carried out between the schools of SDN 1 Gili Indah and SDN Teratak. The results of the t-test analysis in Table 3 showed that there was no difference in the value of students conservation attitudes between the two schools (p value = 0.725 > 0.05).

Table 3. Summary of Test Statistic of Students’ Conservation Attitudes

| Variable                  | N   | t     | df | Sig (2-tailed) | Mean difference | Std. Error Difference |
|---------------------------|-----|-------|----|----------------|-----------------|----------------------|
| Conservation Attitudes    | 52  | -.354 | 50 | 0.725          | -.51574         | 1.45514              |

The results of the statistical test analysis in Table 3 deny the previous assumption that there were differences in conservation attitudes between schools located close to coast (SDN 1 Gili Indah) and schools located far from coast (SDN Teratak). This assumption arose because students whose school located close to coast would be more familiar with and more often interact with coral reef ecosystems, whereas students whose school located far from coast would have difficulty understanding and interacting with coral reef ecosystems directly. However, the results obtained have denied the assumption. The observation results confirmed the results of statistical analysis that students of SDN Teratak, despite geographically located far from coast, but on several occasions students were invited by teacher to conduct study tours to coast, so that students were familiar with coral reefs. Even on family vacation events, people located far from coast are more likely to have vacation on the beach than other places, so there is possibility of students feel familiar with the coral reef ecosystems. The results of previous studies reinforce this assumption that field trip activities can encourage active involvement of students in learning, increase student motivation in learning, students can learn based on experience [25], improve creative thinking [26], and field trips are the best way to instill attitudes and behavior related to sustainable environmental education [27].
4. Conclusion
The results of this research showed that the implementation of local primacy-based comic media can increase students' conservation attitudes and there was no difference students' conservation attitudes of the two observation schools.

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