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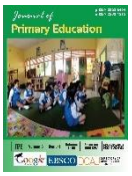

Storybook Influence on Science Concept Comprehension Through Curiosity of Fifth Grade Elementary School Student

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Abstract

The use of storybooks is rarely used in science learning. Though the storybook is able to help students construct the concept comprehension and the curiosity. The purpose of this research is to know the Influence of the storybook on science concept through curiosity as an intervening variable. This is quantitative expose facto research with the formulation of associative problem. Data of Science Concept Comprehension, storybook, and curiosity are successively obtained through the description test instruments, multiple choice test instruments, and observation instruments, and also analyzed by regression analysis and correlation analysis. Storybook and curiosity influenced Science Concept Comprehension, proven correlation analysis of 0.92 and t-tested by 15.14. With the value of 2.02 t_{table}, then the results show that the influence of storybook and curiosity is very strong and significant. In the joint influence, the dominance of storybook influence is very high and significant, evidenced by a partial correlation of 0.89 with a value of t-test of 12.20. While the dominance of the influence of curiosity is very low and not significant, with the result of correlation analysis -0.03 and t-test value of -0.20. These results indicate that the storybook has a powerful effect on Science Concept Comprehension. In the storybook's shared influence, curiosity has no big effect on Science Concept Comprehension. This research should give belief to elementary school teachers to use storybook in learning because it proved very influential towards understanding the Science Concept.

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INTRODUCTION

Children have opportunity to optimize their sense capabilities. There is a lot of information or messages received by children when they use their senses. Children use their eyes to look arround, use their skin to taste, and use their ear to listen. All of these abilities are very likely to be used to obtain information. For example, children are looking for information from books. They use their eyes to see pictures in books or use their hands to open page after page. Storybook is one book that is able to provide a lot of information. Sutanto (2014) give an example that the storybook about teenagers can provide learning and increase knowledge about teenagers identity.

Learning is an activity that involves a person in an effort to get knowledge, skills, and positive values by utilizing various learning resources (Rahma, Sulhadi, & Sumarti, 2016). Storybook is able to bring children to be more interested in studying to the information contained in the story content. Sari (2010) in her research mentions that there is influence of the use of pictorial story media to improve the listening skills in children with learning disabilities. Therefore, there are many benefits when the storybook is used in learning.

Elementary school students are required to be able to master the competencies in the primary education curriculum. Science is one of the subjects in the curriculum. Powler (in Vienna, 1992) said that science is a knowledge that deals with the nature phenomena and the systematic nature of a regularly arranged. It's generally applicable form of collection of observations and experiments. Holbrook and Rannikmae (2009) added that science trains children to make scientific decisions and are responsible for the decisions. Collection of knowledge is organized and documented one of them into book form. However, the majority of the book details available are only a collection of abstract material that does not really concern with the aesthetic side of the book. The problems arise in learning result in a low literacy of students' science seen as a result of learning (Nisa, Sudarmin, & Samini, 2015).

In fact, children have not been able to think imaginary. What the child can understand is only concrete content. According to Piaget (in Simatwa, 2010) children at this level are still thinking realists, having difficulty comprehending the subtleties involved in various situations. Therefore, children find it difficult to understand the material science that tend to abstract. In line with the result. Surahmadi (2016) argues that students tend to be bored if they reads simply memorized material and listens to the teacher's explanation. Need new innovations in delivering the material in the classroom so that learners can be more active and motivated in learning. Books as learning materials need to be tailored to their goals. The favored students books are having the simple content or uncomplicated and not much discussed, concrete and related to everyday life, not many scientific terms and easy to memorize (Hindarto, Wiyanto, & Iswari, 2017).

The teachers in Gunungwungkal, through the Literacy Workshop of Pati Regency at 6 to 8 December 2016, have successfully developed one of the storybook. The workshop was organized by the Education Office of Pati Regency to push the teacher to make a literacy product. In order to introduce the product, the storybook is distributed to all fifth grade teachers to use in their lesson. The teachers in Gunungwungkal hope the storybook gives a good influence to fifth grade students.

Brenner (2009) mentions that the storybook becomes an important part in learning. That storybook mentioned is a book with a story in it supported with illustrations. The function of storybook is to improve students' science concept comprehension. Accourding to Lachapelles, *et al,*, (2014) the function has been proven to be true that the Storybook has an effect on students. Students' learning attitudes and attitudes change from before and after using the storybook. The attitudes and interests can be regarded as students' curiosity.

Jocz and Lachapelle (2012) argue that the implementation of the storybook also affects the

child's curiosity. In generally, students will be actively engage in scientific teaching when they see that the learning situation tends to satisfy itself as well as to explore itself in the discovery of science (Suendarti, 2017). Curiosity is defined as the desire or need of someone to get answers to a question or things that cause typically. Curiosity can generate internal motivation to learn and understand something (Binson, 2009). Thus, it can be a fact that curiosity also affects the ability of children concept comprehension. Zachariou, *et al* (2017) said that "It is also worth noting that knowledge and understanding affect the attitudes towards environmental education. There seems to be a two-way dynamic relationship between these two parameters since information enriches knowledge and the enrichment of knowledge stimulates curiosity and the need for further knowledge". Knowledge and comprehension affect the environmental education. In addition, knowledge and comprejension can stimulate curiosity.

Literacy ability is one aspect of early childhood development. Literacy ability is a genetic ability and is very beneficial for the next child's life (Bali, Fakhruddin, & Rifa'i, 2016). The use of a storybook is considered successful in teaching and learning activities in civilized countries. For example in the United States, through the EiE Curriculum using storybooks in it and applying the science literacy standard in the curriculum. Based data from the PISA (Program for International Student Assessment), data collected from Kemendikbud website (2015), the comprehension ability of sains in Indonesia is far below the average. Of the 57 countries studied by PISA, Indonesia is ranked 50. That means the ability of Indonesian children to understand the facts of nature and make decisions about nature is still below the average ability of children in the world. In order to realize effective learning, teachers play an important role in learning. Teachers should be able to guide, direct and create student learning conditions (Khoirunisyah, Purwanti, & Yanuarita, 2016). The use of storybooks and similar learning resources is rarely used in learning. It is alleged that this has led to a low science concept comprehension of children in Indonesia. Duruk (2017) mentions that teachers are also allowed to take the initiative as an active process practitioner. Teachers should be able to make flexible plans and outcomes according to lesson plans.

Based on the above description, the purpose of this reseach are: (1) To know the effect of the storybook on science concept comprehension; (2) To investigate the effect of the storybook on students curiosity; (3) To understand the influence of students curiosity on their science concept comprehension; (4) To get information about the influence of storybook and curiosity towards science concept comprehension; (5) To know the partial influence of storybook on science concept comprehension; (6) To know the partial influence of curiosity to understanding the science concept comprehension.

This research aim to give contribution to the teacher about the effect of storybook to role the science concept comprehension, and to give information about curiosity involvement in science learning using storybook as a learning resource.

METHODS

The type of this research is expose facto quantitative research by using correlational design. Frankel and Wallen (2008) explain that correlational quantitative research is used to determine the relationship and relationship level between two or more variables without any attempt to influence the variable so there is no variable manipulation.

Variabels in this research are science concept comprehension, storybook, and curiosity. Instruments tested to several members of the population for analyzed the validity and reliability. At the main research stage, instrument grating and research instruments are prepared before conducting research on sample.

The research was conducted on fifth grade students at two elementary schools in Gunungwungkal sub-district, Pati District, consist of 41 students. The sample selection is done by stratified random sampling technique,

meaning that the selection of samples is done with certain considerations (Sugiyono, 2015). After collecting data, analysis of the data is performed. There are 2 types of data analysis, namely descriptive analysis and inferential analysis. Descriptive analysis is a statistic used to analyze data by describing or describing data that has been accumulated as it is without intending to make conclusions that apply to the public or generalization (Sugiyono, 2015). Several part of this analyze are mean, min, max, count, and standart deviation of each data. Inferential analysis begins with the analysis of simple linear regression equations and multiple linear regression. To determine the significance value of each equation, the data is tested using F-test. In order that the linear regression equation can be generalized to the population, the normality test, autocorrelation test, multi-kolinieritas test, and heteroscedasticity test are performed.

In general, this research examines the effect of the storybook on science concept comprehension with curiosity as an intervening variable with the following chart. Sorybooks (X_1) have an effect on science concept comprehension (Y), but curiosity (X_2) also interferes with that influence.

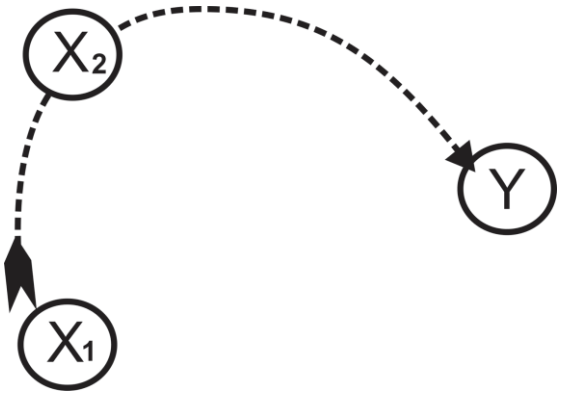

Figure 1. Correlational Design of the Storybook on Science Concept Comprehension with Curiosity As Intervening Variable

However, to obtain the test results, it is necessary to prepare a test of the correlation coefficient which is more complex. The required coefficient tests include simple coefficients, multiple coefficients, and linear coefficients as illustrated below.

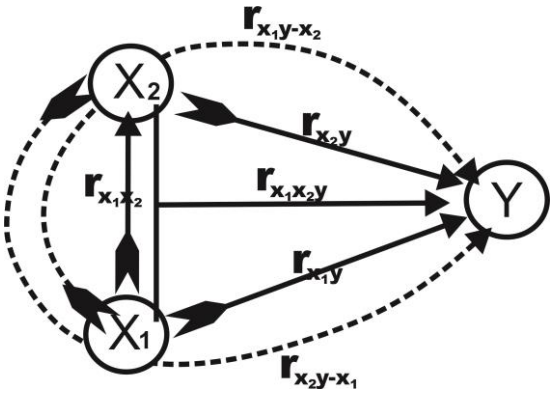

Figure 2. Correlational Coefficient Designs that Needed to Know Storybook Influence on Understanding Concepts Through Curiosity

After the hypothesis is proven, then the ressults discussed and given a support theory that is able to accompany the hypothesis.

RESULTS AND DISCUSSION

Descriptive Analyze Report

Science concept comprehension of elementary school fifth grade students in Gunungwungkal district in 2016/2017 academic year was described as five criteria., The results is 3 students (7.32%) have a very bad understanding, 8 students (19.51%) classified as not good, 15 students (36.58%) are quite good, 12 students (29.27%) are good, and 3 students (7.32%) are very good. In general it can be concluded that the science concept comprehension of fifth grade student Gunungwungkal Elementary Schools is good enough.

Table 1. Science Concept Comprehension Description

Interval	Criteria	Frequency	%
35 – 45	Very Bad	3	7.32
46 – 56	Not Good	8	19.51
57 – 67	Quite Good	15	36.58
68 – 78	Good	12	29.27
79 – 94	Very Good	3	7.32
Total		41	100

Storybook obtained by fifth grade students in Gunungwungkal Sub District Elementary School in 2016/2017 academic Year, obtained the result of 6 students (16.64%) get storybook

with very bad, 7 students (17.07%) classified not good, 17 students (41.46%) are quite good, 8 students (19.51%) are good, and 3 students (7.32%) are very good. In general it can be concluded that the storybook obtained of fifth grade student in Gunungwungkal Sub-Discrit Elementary Schools is good enough.

Table 2. Storybook Description

Interval	Criteria	Frequency	%
35 – 45	Very Bad	6	16.64
46 – 56	Not Good	7	17.07
57 – 67	Quite Good	17	41.46
68 – 78	Good	8	19.51
79 – 94	Very Good	3	7.32
Total		41	100

Curiosity of fifth grade students in Gunungwungkal Sub-District Elementary School 2016/2017 academic year, obtained the results of 8 students (19.51%) have a curiosity with the category is very bad, 8 students (19.51%) classified as not good, 9 students (21.95%) were quite good, 9 students (21.95%) were good, and 7 students (17.08%) were very good. In general it can be concluded that the curiosity of fifth grade students in Gunungwungkal Sub-District Elementary Schools is good enough.

Table 3. Curiosity Descriptive

Interval	Criteria	Frequency	Percentage (%)
35 – 45	Very Bad	8	19.51
46 – 56	Not Good	8	19.51
57 – 67	Quite Good	9	21.95
68 – 78	Good	9	21.95
79 – 94	Very Good	7	17.08
Total		41	100

Inferensial Analiyze Report

Storybook Give Influence on Science Concept Comprehension

The results of this research indicate that there is an influence of the storybook on science concept comprehension. In the storybook correlation analysis of science concept comprehension, the result of correlation analysis is 0.924. The result show that the influence of the storybook on sceince concept comprehension is very strong. The t-tested correlation value is 15.127. The value is greater than the value of t_{table}, where the value of t_{table} is 2.023. This indicates that the effect is significant. Analysis of determination coefficient of 0.854 shows that 85.44% science concept comprehension is influenced by the storybook, while the remaining 14.56% is influenced by other factors. Thus, significantly, 85.44% of the understanding of the concept of science is strongly influenced by the storybook, while 14.56% of the concept's understanding is influenced by other factors.

This is in line with the research conducted by Indarni (2012) which concluded that the effective picture storybook is used to memorize the gender roles understanding in children in kindergarten. Although in the Indarni study the book is read by the teacher, but in this case the main concern is the comprehension of the story. Matamoros (2014) argues that learning resources, like storybooks, can help teachers in preparing learning plann and able to develop students' skills in understanding the concept. The more opportunities students have in getting stories to influence their understanding of the concept.

Storybook Role in Influence of Curiosity

The results of this study indicate that there is an influence of storybook on curiosity. In the storybook correlation analysis of curiosity, the correlation analysis is 0.603. The result show that the storybook's influence on curiosity is strong. The t-tested correlation value is 4.714. The value is greater than the value of t_{table}, where the value of t_{table} is 2.023. This indicates that the effect is significant. Determination coefficient analysis of 0.363 indicates that 36.29% curiosity is affected by the storybook, while the remaining 63.71% is influenced by other factors. Although this influence is not very strong and its determination is also less than 50%, this influence is still considered statistically significant. Thus, significantly, 36.29% curiosity is strongly influenced by the storybook, while 63.71% of curiosity is influenced by other factors.

Through stories, plots, and visuals, storybooks have a power to support potential readers interested in holding and reading the storybook. Curiosity arises after students get the

learning media in the form of a storybook. As stated by Setiawati (2013) in her research which expose that the character of the children before being given the science storybook has changed compared to after given the science stories book. In the study expose that there are significance proggress of children character during the observation. 79.47% children character has ben seen. One character observed in the study was a curiosity.

Storybooks are very likely to give an important role in increasing curiosity. In its particulates, Olcer (2015) writes that "...more perfectionist raising of first and only child can be said to originate from having more expectations from these children and having more rich opportunities and interest in terms of facilities and equipment ". The right media and learning resources can provide children with wide opportunities and increase their interest in learning. Students will encounter many things that will raise questions within themselves that develop curiosity and communication (Putri, Khanafiyah, & Susanto, 2014).

Curiosity Give an Influence on Science Concept Comprehension

The results of this research indicate that there is the influence of curiosity towards science concept comprehension. In the correlation analysis of curiosity to science concept comprehension, the result of correlation analysis is 0.547. The results show that the influence of curiosity on science concept comprehension is quite strong. The correlation value is t-tested and is 4.083. The value is greater than the value of t_{table}, where the value of t_{table} amounted to 2.023. This indicates that the effect is significant. Analysis of determination coefficient of 0.2295 shows that 22.95% science concept comprehension is influenced by curiosity, while the remaining 77.05% influenced by other factors. Thus, significantly, 22.95% of the science concept comprehension is strongly influenced by curiosity, while 77.05% of the science concept comprehension is influenced by other factors.

The effect of curiosity in this research is not so strong, even through its determinant coefficient is only able to perceive 22.95% science concept comprehension. Curiosity is more able to be improved with moving learning activities, meaning that there are physical activities involving motor activity. As in Ismawati's (2014: 16) research, students scince concept comprehension increases as teachers apply the conceptual understanding procedur model of the demonstration method, but the increase in students' curiosity is not greatly increased. Teachers' positions in learning are outlined by Edrogan & Ciftci (2017) that: "…the teacher candidates improve their imagination, handcrafting skills, observation skills, designing skills, engineering skills and high-level thinking skills; help the permanence of the knowledge through learning by doing and living…". Teachers are the ones who are very likely to have a great influence on the children attitude in the learning process.

Storybook and Curiosity Give an Influence on Science Concept Comprehension

Storybook together with curiosity give an influence to science concept comprehension.In the storybook and the curiosity correlation analysis of science concept comprehension, the result of correlation analysis is 0.924. The results indicate that the influence of the storybook and the curiosity of science concept comprehension is very strong. The t-tested correlation value is 15.136. The value is greater than the value of t_{table}, where the value of t_{table} is 2.023. This indicates that the effect is significant. Analysis of determination coefficient of 0.8552 shows that 85.52% science concept comprehension is influenced by the storybook and curiosity, while the remaining 14.48% is influenced by other factors. Thus, significantly, 85.52% of the science concept comprehension is strongly influenced by the storybook and curiosity, while 14.48% of the science concept comprehension is influenced by other factors.

Keat (2009) in his research mentioned that the use of storybook can improve students' motivation in learning and also develop a positive approach to learning mathematics in kindergarten. When children imagine the story

content in the storybook, the child is struggling to solve the problem. By discussing what the children imagine, children are constructing their mathematical knowledge and using their mathematical skills and it improves their motivation and attitude toward the subjects of mathematics. Student curiosity arises because students are directly involved in finding concepts to solve problems and students are invited to discuss to solve the problem and they present the results of the discussion in front of the class (Afrida, Sugiarto & Soedjoko, 2015). It supports the results of this study where the storybook and curiosity are simultaneously able to influence the outcome of conceptual understanding. Understanding the concept is clearly visible when students are able to solve problems.

Storybook Give a Partial Influence on Science Concept Comprehension

Result of correlation analysis show that there is partial influence of storybook to science concept comprehension, that is equal to 0.890. The results indicate that the partial influence of storybook on science concept comprehension is very strong. The t-tested correlation value is 12.199. The value is greater than the value of t_{table}, where the value of t_{table} is 2.023. This indicates that the effect is significant. The coefficient of determination analysis is 0.8552, indicating that when storybook and curiosity together affect 85.52% science concept comprehension, the storybook gives a very strong influence. Meanwhile, 14.48% concept comprehension is influenced by other factors.

The results are in line with research conducted by Seyit (2010) that the legibility of the story is higher for readers who read electronic storybooks with animation than readers who struggle to read electronic storybooks without animation. In other words, animation is shown to positively affect the understanding of struggling fourth-grade readers. Students who read the storybook with the animation was able to remember more detail and story information when the story is over. Another important result of this research is that students who read the animated version are more creative when asked to tell the story content. Storybook communicative allows students to be able to express the contents of the story with his own sentences well.

Curiosity give A Partial Influence on Science Concept Comprehension

The result of partial correlation analysis shows that the effect of curiosity toward science concept comprehension is -0.032. The results show that there is no partial influence curiosity on science concept comprehension. The t-tested correlation value is -0.198. The value is smaller than the value of t_{table}, where the value of t_{table} is 2.023. This shows that the effect is not significant. Analysis of determination coefficient of 0.8552, indicating that when storybook and curiosity together affect 85.52% science concept comprehension, curiosity give a weak influence. Meanwhile, 14.48% science concept comprehension is influenced by other factors.

Gurning research (2017: 198) mentions that differences in the use of strategies in learning can affect the level of student curiosity. The INSERT strategy is a strategy that help students interact with the text to clarify their thinking. SQ3R is a reading comprehension strategy named for its five steps: survey, question, read, recite, and review. Different of the two strategy is the interaction with the text. Student's success in reading comprehension using INSERT strategy is higher than using SQ3R strategy. Student understanding with higher curiosity when using INSERT compared to when using SQ3R is a contributing factor to high student success. Learning strategy that has a high influence in determining the success of learning. Storybook is only a learning media and a leraning material. To make a good character building, teacher need a strategy to support the media. So, curiosity is more influenced by teacher strategy than the materialxxx.

CONCLUSION

Based on the results and discussion obtained that the curiosity is not able to interfere with the influence of the storybook on science

concept comprehension. This is indicated by the statement: (1) The use of integrated science storybook material is very influential on science concept comprehension in fifth grade elementary school students, meaning that if students understand the storybook content is very high then the science concept comprehension is also high; (2) The use of integrated science storybook material is very influential on the curiosity of fifth grade elementary school students, meaning that if each student understands the contents of the storybook with high, then the curiosity is also high; (3) Curiosity is very influential on the science concept comprehension of fifth grade elementary school students, meaning that if each student has a good curiosity, then the science concept comprehension is also quite good; (4) Curiosity intervention on the influence of the storybook on science concept comprehension does not exist, meaning the storybook is able to give a big influence on science concept comprehension students regardless of the student's curiosity.

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