



## Application of LGBT-themed Socios Scientific Issue Reference Books to Improve Students Knowledge in Senior High Schools

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### ABSTRACT

This study aims to determine the increase in students' knowledge through the application of reference books based on socio-scientific issues with the theme of LGBT (Lesbi, Gay, Bisexual, and Transgender) which have been developed previously and integrated into the reproductive system material in class XI humans. The research was conducted at SMA PGRI Pekanbaru. The method used in this research was a Research and Development. Sources of research data came from 50 Class XI MIPA students. Research design was One group pretest posttest only. Data collection obtained from the pretest and posttest results of students' knowledge. The results showed that the students' knowledge had increased in the posttest results from 52.8 to 86.7 with a relatively high increase (N-Gain 0.71). From the results of the study, it can be concluded that reference books based on socio-scientific issues with the LGBT theme can be used as additional biology learning media in high school on reproductive system material.

## 1. Introduction

Education is a means of conscious and planned efforts to explore the potential of students in the process of changing their mindset to phenomena that occur in the environment with existing concepts for the creation of appropriate actions in making thinking decisions. One of the phenomena that is currently becoming a hot issue among the public is cases of sexual deviance such as LGBT. The phenomenon of the presence of LGBT groups in social life has led Indonesia to rank fifth on the international scale with a population of around 7.5 million out of 250 million Indonesians who are LGBT (Santoso., 2016). Riau Province is included in the category of LGBT emergency according to the observations of MUI Riau. LGBT behavior can have a very bad impact on anyone who has become LGBT perpetrators. In the last two years, according to data from the Riau Province AIDS Commission (KPA), the spread of HIV / AIDS in Riau among

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LGBT people has become increasingly widespread. From the initial data, 0.1 percent has now increased to 0.7 percent of transmission (Tanjung., 2017).

In the present decade, the lesbi world has become a product and public consumption, like it or not, it is very real in front of us all and we must act in a multicultural society (Jalil., 2016). Based on the results of a questionnaire on students' perceptions of the presence of LGBT, it was found that 47% were contra, 33% were pro and 20% were doubtful. Respondents who have a counter attitude strongly reject the presence of LGBT groups around them, respondents feel amused and uncomfortable with their existence. In addition, according to respondents, LGBT perpetrators must be subject to punishment and reported to the authorities if caught in the home environment. When someone hears about LGBT, the emergence of a counter-attitude is driven by the fear of being infected with this deviant behavior. In addition, with the presence of LGBT groups there is a fear of inviting God's wrath.

As Allah's wrath has been confirmed in a hadith of the Prophet Muhammad. "If a man 'climbs' another man, Arsy shakes because he is afraid of Allah's wrath. The sky almost collapses because of that action. The angels hold onto the edge of the sky while reading 'qul huwa Allah ahad' (letter of Ikhlas), so that they are angry. God subsided again. " (Al-Kabir, p. 57).

On the other hand, respondents with a pro attitude thought that LGBT people needed to be respected, not isolated, needed guidance, and there was a need for laws protecting the human rights of LGBT groups. The emergence of pro attitudes from some respondents could arise because of their sense of empathy in a humanitarian context. Based on the results of discussions with Dr. Phil. Syarifah Farradinna, S.Psi., MA., As an expert psychologist, argues that the pro attitude towards LGBT people can be caused by the factor that the respondent has relatives or family who have fallen into this deviant behavior. Being pro does not mean they are supportive of LGBT behavior, it could be more humanitarian. His opinion is also in line with the results of research from Ganesha., 2019 which explains that those who have LGBT families tend to be more tolerant regarding LGBT rights. Therefore, it is necessary to integrate material about LGBT into biology learning..

Reproductive system learning materials are very suitable to be integrated with socio-scientific issues with LGBT themes in the form of reference books. The material relationship between the reproductive system and the LGBT case is related to the explanation that Allah has created humans in pairs with a sex that only consists of men and women. In addition, the purpose of reproduction is to continue life to give birth to a new human generation. If LGBT continues to be tolerated, there will be extinctions on earth because there is no fertile relationship in continuing the divinity. In line with Suherry et al., 2016, explaining that LGBT must be followed up and negated. You know that in pairs there are only boys and girls, this has been undeniable since ancient times.

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The integration of additional material specifically about LGBT in Biology learning is very important so that students have a strong self-defense and do not fall into sexual deviant behavior and do not join the LGBT community. Because according to Harahap., 2016 the activities of the LGBT community that contradict religious norms and interfere with other human rights, according to Islamic law and a human rights perspective, these activities must be prohibited, they may even be subject to sanctions. Therefore, it is necessary to use reference books based on socio-scientific issues that have been made as teaching materials. Teaching materials provided in addition to textbooks can increase students' knowledge (Suhadi et al., 2019). With the innovation of teaching materials, it can increase students' knowledge so that it is expected to be able to improve students' critical thinking.

The use of reference books is an alternative to increase students' knowledge in students' critical thinking skills by referring to indicators of critical thinking, namely analyzing, linking, and concluding. Therefore, the use of this reference book is expected to be used in the teaching and learning process in schools. The purpose of this study was to analyze the effect of using reference books based on LGBT issues of social science on students' knowledge.

## 2. Methodology

This research was a research development (Research and Development) which aims to formulate and produce reference books based on socio-scientific issues with the LGBT theme. The development model used was the ADDIE model which consists of the Analysis, Design, Development, Implementation and Evaluation stages (Dick et al., 2005). The place for the development of reference books is in the Master Program in Biology Education, Faculty of Teacher Training and Education (FKIP), University of Riau. Meanwhile, research in the implementation of the reference book development results was carried out at SMA PGRI Pekanbaru in order to find out students' knowledge.

The knowledge test instrument that was analyzed is in the form of objective questions, amounting to 30 questions. The questions designed are critical thinking questions by applying 3 main indicators, namely analyzing, linking, and concluding. The data analysis carried out included test result data which aims to obtain learning outcomes using reference books before and after learning. Data analysis was tested with the following steps:

- a) Calculating the score of each pretest and posttest answer, according to the answer key.
- b) Calculating the pretest and posttest scores.

$$\text{skor siswa} = \frac{\text{jumlah skor yang diperoleh siswa}}{\text{skor total}}$$

- c) Calculating the average score of the pretest and posttest for all students.

$$\text{skor rata-rata siswa} = \frac{\text{skor total siswa}}{\text{jumlah siswa}}$$

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d) Calculating the percentage of the average pretest and posttest scores for all students.

$$\% \text{ skor rerata siswa} = \frac{\text{skor total siswa}}{\text{jumlah siswa} \times \text{skor ideal}} \times 100\%$$

The results of the percentage of knowledge are then converted into qualitative data using the criteria as in table 1.

Table 1. Scale of students' knowledge categories

Mastery Level	Category
86-100	Very good
76-85	Good
66-75	Enough
55-65	Less
≤ 54	Very less

e) Calculating the difference between pretest and posttest (N-gain) scores.

$$N_{\text{gain}} = \frac{\text{Skor Posttest} - \text{Skor Pretest}}{\text{Skor Ideal} - \text{Skor Pretest}}$$

f) From the gain index value obtained is interpreted and analyzed descriptively using the criteria according to Sudijono., 2008 as in Table 2.

Table 2. N-Gain category

Koefisien	Category
$N\text{-Gain} > 0,7$	High
$0,3 \leq N\text{-Gain} \leq 0,7$	Moderate
$N\text{-Gain} < 0,3$	Low

### 3. Results and Discussion

#### *Results of Increasing Student Knowledge*

Teachers have a very important role in the learning process in schools. Educators are required to be active to be able to bring big changes in increasing the knowledge of students. Article 1 point 20 of Law no. 20 of 2003 concerning the National Education System, states that learning is a process of student interaction with teachers and learning resources in a learning environment.

One of the efforts made by the government to improve the quality of the nation's education is through changes to the learning process in the curriculum (Fauzi et al., 2021). Reference books can be a learning resource that can help students in the learning process to increase knowledge. The learning strategy that is thought to empower critical thinking skills, communication skills, and collaboration of students is learning based on socio-scientific issues. Socio-scientific issues are strategies that aim to stimulate intellectual, moral and ethical development, as well as awareness of the relationship between science and social life (Zeidler et al., 2005; Nuangchalerm, 2010). Including socio-scientific issues in the learning

process is important in order to produce a responsible community, able to apply scientific knowledge, and have the ability to think (Amalia et al., 2018).

The process of increasing student knowledge is one of the problem formulations studied in this study. The form of questions that are trained to students is in the form of critical thinking questions in the form of multiple choices by presenting data on the latest issues related to LGBT and material on the human reproductive system. With the development of critical thinking skills, students can explore and evaluate all kinds of information. Increased critical thinking emphasizes students to be able to explore and evaluate all types of information (Supriati et al., 2020). The increase in students' critical thinking knowledge is seen from the results of the pretest and posttest values presented in Figure 1.

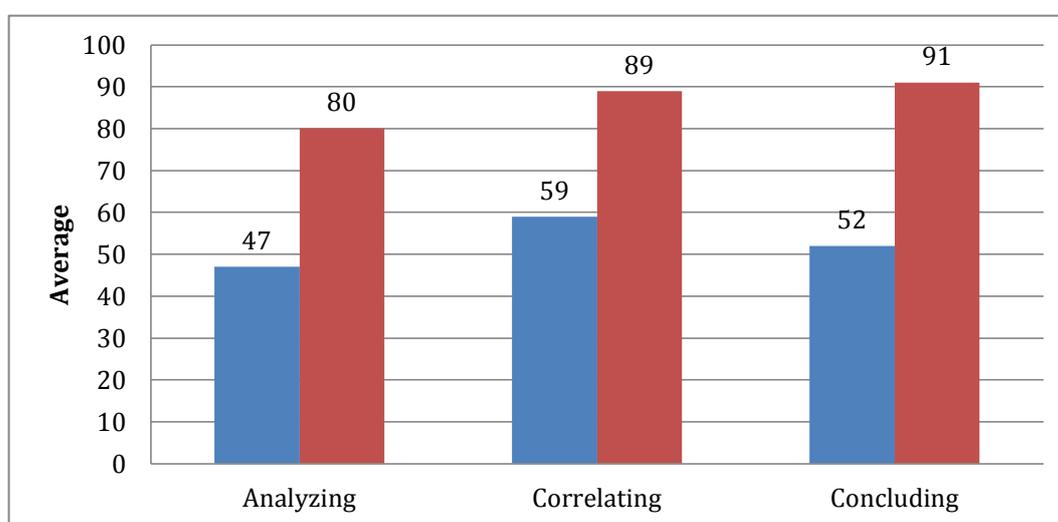


Figure 1. The histogram of students' critical thinking skills at the pretest and posttest

Based on Figure 1, it can be seen that the increase in student knowledge based on each indicator of critical thinking has increased from the results of the pretest and posttest scores. In the analysis indicator there is an increase from the value 47 to 80. In the indicator linking the value from 59 to 89 and concluding from 52 to 91.

The results of increasing student knowledge on each indicator of critical thinking based on N-Gain can be seen in table 3 below,

Table 3. Students' knowledge on each indicator of critical thinking based on N-Gain

Indicator	Analyze	Link	Conclude
Indeks N-Gain	0,85	0,68	0,69
Category	High	Moderate	Moderate

Table 3 shows the level of knowledge of students based on N-Gain on each indicator of critical thinking. Critical thinking is one side of being a critical person

with thoughts that must be open, clear, and based on facts. Effective critical thinking learning is very important for students in the classroom (Dijaya et al., 2020).

According to Fuad., 2016 critical thinking skills are essential skills for students who are required in the 2013 curriculum. In addition, one of the main goals of schools is to increase the ability to think critically and make rational decisions about what has been done or believed.

In general, the definition of critical thinking skills put forward by experts is summarized by Fascione., 2015 which suggests that the core of critical thinking is part of cognitive skills which includes interpretation, analysis, evaluation, inference. , explanation (explanation), and self-regulation (self regulation).

### **Analyze**

Indicators analyze in the critical thinking process in this study consist of differentiating, organizing and contributing. The analyzing indicator has a very high level of increase in student knowledge, namely with an N-Gain value of 0.85. The process of analyzing differentiating sub indicators requires students to be able to distinguish between true and false statements. In the sub-indicators of organizing students are expected to be able to group each existing statement into a single correct answer that is requested by the teacher. Whereas the contribution sub-indicator aims to make students have a big share in making a decision from a statement.

Analysis is the ability to identify correct intentions and conclusions between statements, questions, concepts, descriptions based on beliefs, decisions, experiences, reasons, information or opinions (Susilowati., 2017). Meanwhile, according to Kallsaff., 2004 explains that analyzing is the ability to identify, separate, and distinguish the components or elements of a fact, concept, opinion, assumption, hypothesis or conclusion, and examine each of these components to see whether or not a contradiction exists.

### **Link**

On the indicator, the N-Gain value is 0.68 in the medium category. Indicators linking consists of sub indicators relating facts to facts, facts with concepts and facts with theory. In this case students are required to be able to distinguish between facts, concepts and theories in depth and then link the issues that develop about LGBT in society into a fact that is clear in terms of concepts and theories. According to the Ministry of National Education (2006) learning is about facts, concepts, or principles that will become a process of discovery

### **Conclude**

The last indicator concludes that the score is in the medium category, namely 0.69. The final stage concludes that students are required to be able to solve

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problems, summarize and categorize the conclusions of all learning that has been learned based on the facts that have been presented. In general, students have been able to summarize the conclusions of a learned lesson. Santoso., 2010 stated that through drawing conclusions students will be better able to improve their critical thinking skills.

Overall, based on the students 'pretest and posttest scores, the increase in students' knowledge about LGBT issues was classified as very high. This is based on the overall average value based on N-Gain which is presented in table 4 below. Based on table 4, it can be seen that the increase in student knowledge based on the N-Gain calculation is classified as very good.

Table 4. The results of increasing student knowledge based on pretest and posttest scores

<i>Pre-Test</i>		<i>Post-Test</i>	
Value	Criteria	Value	Criteria
52,8	Very less	86,7	Very Good
<b>N-Gain</b>		<b>0,71</b>	High

The high rate of increasing students 'knowledge after using reference books based on the LGBT theme socio-scientific issues proves how important the role of books is as a learning medium to help students' learning process. This is in line with Rahmawati's statement, 2015 which explains that books play an important role as a source of learning because they can foster motivation and stimulate student activities so that students are more active and improve their quality based on understanding the material in the book.

#### 4. Conclusion

Based on the research process on the application of reference books based on socio-scientific issues of LGBT themes to high school level students, the results obtained that using reference books can help students find definite answers to issues developing in society regarding LGBT. In addition, the use of reference books also has an effect on increasing student knowledge as evidenced by the N-Gain score of 0.71. The N-Gain value shows that the increase in students' knowledge is in the high category.

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