The Effect of Conceptual Change Using The Adobe Quran on Misconception, Self-Regulation, Self-Efficacy, and Self-Confidence

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	Abstract
Keywords: Conceptual Change, Misconception, Self-Regulation, Self-Efficacy, Self-Confidence	This study aims to (1) determine the effect of conceptual change using the adobe Quran on the reduction of misconceptions, (2) determine the effect of conceptual change using the adobe Quran on self-regulation, self-efficacy, and self-confidence. The population in this study were all students of class XI in 3 schools. At Islamic Senior High School 1 Bandar Lampung and Senior High School 1 Negara Batin with a total of 6 classes with a total of 95 and 87 students respectively. Senior High School 2 Sekampung with a total of 4 classes and a total of 70 students. This study used a weak experiment with a one-group pretest-posttest design. So that there are 3 classes as research classes namely, class XI MIA 1, XI MIA 2, and XI MIA 6 at Islamic Senior High School 1 Bandar Lampung, class XI MIA 1, XI MIA 2, and XI MIA 3 at Senior High School 2 Sekampung and Senior High School 1 Negara Batin. The data in this study were obtained through a misconception test accompanied by CRI (Certainty of Response Index) and self-regulation, self-efficacy, and self-confidence questionnaire. Data were analyzed using a one-sample t-test. This study concludes that the conceptual change model using the adobe Quran can reduce misconception and increase self-regulation, self-efficacy, and self-confidence. The researcher suggests applying the conceptual change model using adobe Quran to other learning materials so that it can help in reducing misconceptions in other learning materials.

Introduction

Learning science is one of the areas of learning that is closely related to concepts. According to Sagala (2012), conception is the product of a person's or group of people manifested in the form of a definition that will produce knowledge that includes principles, laws, and theories. According to Ormrod (2009), concepts are groupings of events that have a connection to a particular matter. According to Hamalik (2012), the concept is a category that has some common characteristics. Understanding the concept is very important for students because conception is the basis of thinking. According to Berg (2004), each individual will have a different understanding of it, and therefore among the individuals will also have differences. However, if the wrong conception is used as a primary basis for understanding concepts, that is a misconception.

The misconception is a conception that doesn't fit the concept of the experts (A'yun, 2018). They are the principal cause of the obstructions process of receiving and assimilating

new knowledge to students (Suparno, 2005). So that prevents students from being successful in understanding knowledge. If misconception isn't eliminated immediately, it will result in continual misunderstandings and will remain that way (Irawati, 2019). The reproductive system is one of the biological materials that contains a mistake in the concept (Dini et al., 2018). According to Ardiyanti and Rahmawati Utami in their research, it stated that in several sub-concepts of the reproductive system material have misconceptions, including sub-concepts menstruation, gamete cell formation, fertility, pregnancy, childbirth, breastfeeding, and ovulation. Apart from being influenced by student's initial conceptions, misconceptions can also be affected by emotional aspects such as self-regulation, self-efficacy, and self-confidence (Ardiyanti & Rahmawati Utami, 2018).

Self-regulation is as significant as the adjustment process and mental stability treatment, the ability to self-regulate (Anggoro & Haka, 2019). Self-regulation can be measured when a person controls and direct his action well (Haka et al., 2020). According to Robert J Marzano (1994), a person with a balanced mind will have calm self-confidence and a good personality. Self-regulation has several indicators, that is, (1) plan effective (planning), (2) construct and use sources of information (resources), and (3) sensitivity to give feedback.

Besides self-regulation, there is another emotional aspect that is self-efficacy. Self-efficacy is a person's belief in his or her ability to achieve the purpose (Bandura, 1986). Self-efficacy is self-concept in someone that can help direct someone to continue to believe in their ability to reach their every wish (Utami et al., 2020). Individuals who have high self-efficacy are the ones who have a stronger soul and do not give up easily in achieving their desires. According to Bandura (1986), self-efficacy consists of three dimensions, that is, (1) a level or magnitude dimension, (2) a generality dimension, and (3) a strength dimension.

Another emotional aspect other than self-regulation and self-efficacy that can affect misconception is self-confidence. Self-confidence is a significant personality aspect in a person. Without self-confidence, of course, it will cause many problems in one's life. Self-confidence can become impacted by the abilities and skills a person has (Syam, 2017). Dini, Wijaya, and Suganda in their research stated that the higher a person's self-confidence in their abilities, the greater their enthusiasm for completing their work (Dini et al., 2018). Good self-confidence will make students successful in studying Biology because, with this self-confidence, students will struggle to achieve achievements. So that students will succeed in learning Biology (Fitriani, 2015). Self-confidence has five indicators, namely (1) confidence in one's abilities, (2) optimism, (3) objective, (4) responsibility, (5) rational.

The use of appropriate learning models can help reduce misconceptions and improve self-regulation, self-efficacy, and self-confidence. Khoiriyah in her research suggests that conceptual change models can help reduce mistakes in the student's concept because this learning model asks students to confront prejudices against themselves and bring a change in them (Khoiriyah, 2017). According to Rapih and Sutaryanto, conceptual change models provide opportunities for students to engage directly in the learning process. Helping students understand the correct concepts so that they can help reduce misconceptions. It can create a more active learning environment. Allowing students the opportunity to discover for themselves the knowledge they learned so that creating meaningful learning, and can boost teacher creativity (Rapih & Sutaryanto, 2017).

Conceptual change has six compositions, including (1) the presentation of conceptual and contextual problems. (2) the confrontation of misconception matters. (3) the opposition of confrontation with a demonstration of strategies, analogies, and opposing examples. (4) the scientific evidence of concepts and principles. (5) the material presented and contextual sample. (6) confirmation through questions to expand meaningful meaning and application of knowledge (Pebriyanti & Sahidu, 2015).

The research is conducted for 4 weeks. This research needs to be conducted because misconception cannot be ignored and cannot be considered simple, for if misconception is not immediately reduced it will be resistant. So a proper learning model is needed to assist in reducing misconception and can improve self-regulation, self-efficacy, and self-confidence. Based on this, the aim of this research is (1) knowing the effect of conceptual change using the android Quran on the reduction of misconceptions (2) knowing the effect of conceptual change using the android Quran on self-regulation, self-efficacy, and self-confidence.

Method

This research is quantitative using the one-group pretest-posttest design. This design was used because the researchers didn't use the control class so that the 3 classes were a research class and a conceptual change model using the adobe Quran was applied to 3 classes. The pattern of the one-group pretest-posttest design in figure 1.
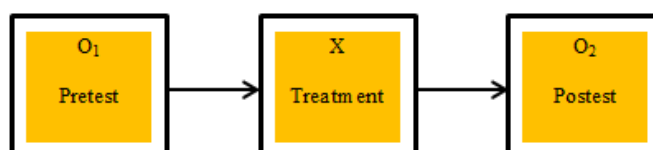

Figure 1. The One Group Pretest-Postest Design Pattern
(Frankel, R. Jack & Norman, E. Wallen, 2009)

The research is a weak experiment and implemented in three schools in Lampung province. Namely, Islamic Senior High School 1 Bandar Lampung is located in Sukarame, Bandar Lampung. Senior High School 2 Sekampung is located in Sekampung, East Lampung, and Senior High School 1 Negara Batin is located in Negara Batin, Way Kanan. The sample in this research is accepted using random cluster sampling (Sumaryanto & Lestari, 2015). The population was taken from Islamic Senior High School 1 Bandar Lampung namely, XI MIA 1, XI MIA 2, XI MIA 6 with a total of 95 students, while for Senior High School 2 Sekampung and Senior High School 1 Negara Batin namely, class XI MIA 1, XI MIA 2, and XI MIA 3 with a total of 70 students and 87 students.

The data collection technique in this research was obtained through the misconception test accompanied by a CRI (Certainty of Response Index) and the questionnaire of self-regulation, self-efficacy, and self-confidence. The data obtained later in analysis using the normality test, the homogeneity test, and the hypothesis test using a one-sample t-test. The hypothesis in this study used a one-sample t-test. The first hypothesis in this research is H0: There is no effect of conceptual changes using the adobe Quran on reducing misconceptions. H1: there is an effect of conceptual change using the adobe Quran on reduced misconceptions.

The second hypothesis is H0: there is no effect of conceptual changes using the adobe Quran on self-regulation, self-efficacy, and self-confidence. H1: there is an effect of conceptual changes from using the adobe Quran on self-regulation, self-efficacy, and self-confidence. With the hypothesis testing criteria if sig. ≤ 0.05 H0 rejected, H1 is accepted.

Results and Discussion

1. Misconceptions

Misconceptions were obtainable from filling in multiple-choice questions about the reproductive system accompanied by a CRI (Certainty of Response Index) at the beginning and the end of the lesson (Ramadhan et al., 2020). The concept mastery test in Table 1, Table 2, and Table 3 show that the misconceptions are reduced at three schools. At Islamic Senior High School 1 Bandar Lampung, misconceptions experience a reduction by 6%. While in Senior High School 2 Sekampung, there is a reduction by 9%, and Senior High School 1 Negara Batin is reduced by 1%.

Table 1. The Results Of Concept Mastery Test At Islamic Senior High School 1 Bandar Lampung

No	Class	Percentage					
		Pretest			Postest		
		Know The Concept	Misconception	Didn't Know The Concept	Know The Concept	Misconception	Didn't Know The Concept
1	XI MIA 1	47%	48%	5%	56%	41%	4%
2	XI MIA 2	47%	48%	6%	54%	41%	4%
3	XI MIA 6	48%	49%	3%	55%	43%	3%
Average		**47%**	**48%**	**5%**	**55%**	**42%**	**4%**

Table 2. The Results Of Concept Mastery Test At Senior High School 2 Sekampung

No	Class	Percentage					
		Pretest			Postest		
		Know The Concept	Misconception	Didn't Know The Concept	Know The Concept	Misconception	Didn't Know The Concept
1	XI MIA 1	40%	36%	24%	53%	26%	21%
2	XI MIA 2	43%	45%	12%	49%	40%	10%
3	XI MIA 3	38%	46%	16%	49%	32%	20%
Average		**40%**	**42%**	**17%**	**50%**	**33%**	**17%**

Table 3. The Results Of Concept Mastery Test At Senior High School 1 Negara Batin

No	Class	Percentage					
		Pretest			Postest		
		Know The Concept	Misconception	Didn't Know The Concept	Know The Concept	Misconception	Didn't Know The Concept
1	XI MIA 1	64%	20%	16%	63%	19%	17%
2	XI MIA 2	64%	20%	15%	67%	19%	14%
3	XI MIA 3	63%	21%	16%	66%	18%	16%
	Average	**64%**	**20%**	**16%**	**65%**	**19%**	**16%**

2. Questionnaire

The questionnaire self-regulation, self-efficacy, and self-confidence were taken using the Linkert scale at the beginning and the end of the lesson (Ridwan, 2014). The Linkert scale scoring table can be seen in Table 4 and Table 5. The data from the questionnaire is self-regulation shown in Table 6. The questionnaire data is self-efficacy shown in Table 7, and the questionnaire data from self-confidence shown in Table 8.

Table 4. Linkert Scale Rating Score

Positive Statment	Score	Negative Statment	Score
Very Often	4	Very Often	1
Often	3	Often	2
Rarely	2	Rarely	3
Never	1	Never	4

Table 5. Category

Range	Category
$81\% < SR,SE,SC \leq 100\%$	Very High
$61\% < SR,SE,SC \leq 80\%$	High
$41\% < SR,SE,SC \leq 60\%$	Enough
$21\% < SR,SE,SC \leq 40\%$	Low
$SR,SE,SC \leq 20\%$	Very Low

Table 6. The Results Of The Self-Regulation Questionnaire at Islamic Senior High School 1 Bandar Lampung

No	Class	Percentage					
		Pretest			Postest		
		Planning	Resources	Feedback	Planning	Resources	Feedback
1	XI MIA 1	67%	67%	70%	69%	68%	71%
2	XI MIA 2	65%	68%	70%	70%	69%	67%
3	XI MIA 6	69%	68%	66%	72%	69%	66%
	Average	67%	68%	67%	70%	69%	68%
	Self-Regulation	**67%**			**69%**		
		High			High		

Table 7. The Results Of The Self-Efficacy Questionnaire at Senior High School 2 Sekampung

No	Class	Percentage					
		Pretest			Postest		
		Magnitude	Strenght	Generality	Magnitude	Strenght	Generality
1	XI MIA 1	55%	49%	60%	64%	61%	68%
2	XI MIA 2	59%	58%	58%	66%	58%	66%
3	XI MIA 3	60%	50%	51%	61%	59%	79%
Average		58%	52%	56%	64%	59%	71%
Self-Efficacy		55%			65%		
		Enough			High		

Table 8. The Results Of The Self-Efficacy Questionnaire at Senior High School 1 Negara Batin

No	Indicator	Pretest		Postest	
		Persentage	Information	Persentage	Information
1	Confidence in one's abilities	62%	High	70%	High
2	Optimistic	65%	High	79%	High
3	Objective	63%	High	74%	High
4	Responsible	65%	High	76%	High
5	Rational	64%	High	75%	High

The Questionnaire results for self-regulation, self-efficacy, and self-confidence indicated a percentage increase at three schools before and after learning. Self-regulation increased by 2%, while self-efficacy increased by 10%. And each indicator of self-confidence increased, for the indicator confidence in ability increased by 8%, the optimistic indicators increased by 14%, and. The objective, responsible, and rational indicators increased by 11%.

3. The Results of Hypothesis Test Analysis of One-Sample T-Test

The recapitulating of concept mastery and self-regulation, self-efficacy, and self-confidence were analyzed using the one-sample t-test analysis technique. Normality test using the Kolmogorov Smirnov test. If normal distribution data can continue to the one-sample t-test. The normality table for misconceptions in Table 9 and questionnaires in Table 10. The one-sample t-test hypothesis proposed is as follows.

H0: accepted if the value is sig. $\geq \alpha$ (0.05), then H1 is rejected.

H1: accepted if the value is sig. $\leq \alpha$ (0.05), then H0 is rejected.

Based on Table 11, the results of the one-sample t-test misconceptions, and Table 12, the one-sample t-test questionnaire results for self-regulation, self-efficacy, and self-confidence, all three schools received sig. (2-tailed) $\leq$ 0.05, then H1 is accepted.

Table 9. Normality Test Of Misconception

Test Type	Asymp. Sig 2 Tailed	Table Significance Value Criteria (0,05)	Conclusion (Sig count > ½ (α) (0,025) = normal distribution)
Pretest	0,06	0,05	Normal Distribution
Posttest	0,07	0,05	Normal Distribution

Table 10. Normality Test Of Questionnaire

Quesionnaire	Test Type	Asymp. Sig 2 Tailed	Table Significance Value Criteria (0,05)	Conclusion (Sig count > ½ (α) (0,025) = normal distribution)
Self-Regulation	Pretest	0,559	0,05	Normal Distribution
	Posttest	0,427	0,05	Normal Distribution
Self-Efficacy	Pretest	0,200	0,05	Normal Distribution
	Posttest	0,200	0,05	Normal Distribution
Self-Confidance	Pretest	0,042	0,05	Normal Distribution
	Posttest	0,042	0,05	Normal Distribution

Table 11. The Results of One-Sample T-Test Misconceptions

The Name Of Schools	Tes	Test Value	t	df	Sig. (2-tailed)	Information
Islamic Senior High School 1 Bandar Lampung	Pretes	0.70	-7.420	74	0,000	Sig. (2-tailed) ≤ α (0,05)
	Postes		-22.709	74	0,000	
Senior High School 2 Sekampung	Pretes	0.70	35,787	69	0,000	Sig. (2-tailed) ≤ α (0,05)
	Postes		44,158	69	0,000	
Senior High School 1 Negara Batin	Pretes	0.70	-22.544	74	0,000	Sig. (2-tailed) ≤ α (0,05)
	Postes		-22.467	74	0,000	

Table 12. The Results of One-Sample T-Test Questionnaire

Questionnaire	Tes	Value	t	df	Sig. (2-tailed)	Information
Self-Regulation	Pretes	60	-11.198	94	0,000	Sig. (2-tailed) ≤ α (0,05)
	Postes	60	-9.553	94	0,000	
Self-Efficacy	Pretes	60	-7.006	69	0,000	Sig. (2-tailed) ≤ α (0,05)
	Postes	60	12.036	69	0,000	
Self-Confidence	Pretes	70	-15.986	86	0,000	Sig. (2-tailed) ≤ α (0,05)
	Postes	70	-15.558	86	0,000	

The Results in Table 1, Table 2, and Table 3 show that using conceptual change with the adobe Quran can reduce misconceptions on learning. Senior High School 2 Sekampung (Table 2) experienced a significant decrease in misconceptions compared to Islamic Senior High School 1 Bandar Lampung (Table 1) and Senior High School 1 Negara Batin (Table 3). The hypothesis one sample t-test shows that conceptual changes can help reduce misconceptions in students with sig. (2-tailed) $0.000 \leq 0.05$ (Table 11).

According to Ramadhani in his research, she stated that the reproductive system is one of the biology learning concepts that requires considerable understanding. The reduction of misconception discernible from the percentage of misconception reduction achieved at each question indicator at the beginning and end of learning. The materials of the reproductive system matter are those regarding the function structure of the reproductive organs. Explains the process of forming sex cells (gametogenesis). Link the ovulation process to the menstrual cycle. Analyze the process of fertilization, gestation, and childbirth. Conclude abnormalities and diseases in the reproductive system, and gather information on hormones that affect the reproductive system (Ramadhani, 2016). The percentage reduction of each indicator of the misconception question among the three schools shown in Figure 2, Figure 3, and Figure 4.
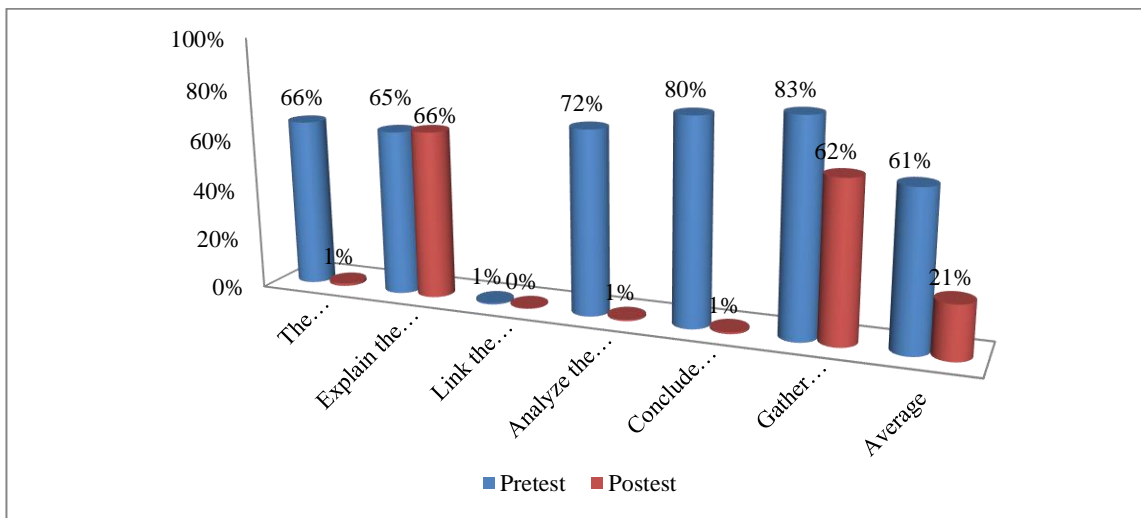
Figure 2. Percentage reduction of misconception for each indicator in Islamic Senior High School 1 Bandar Lampung
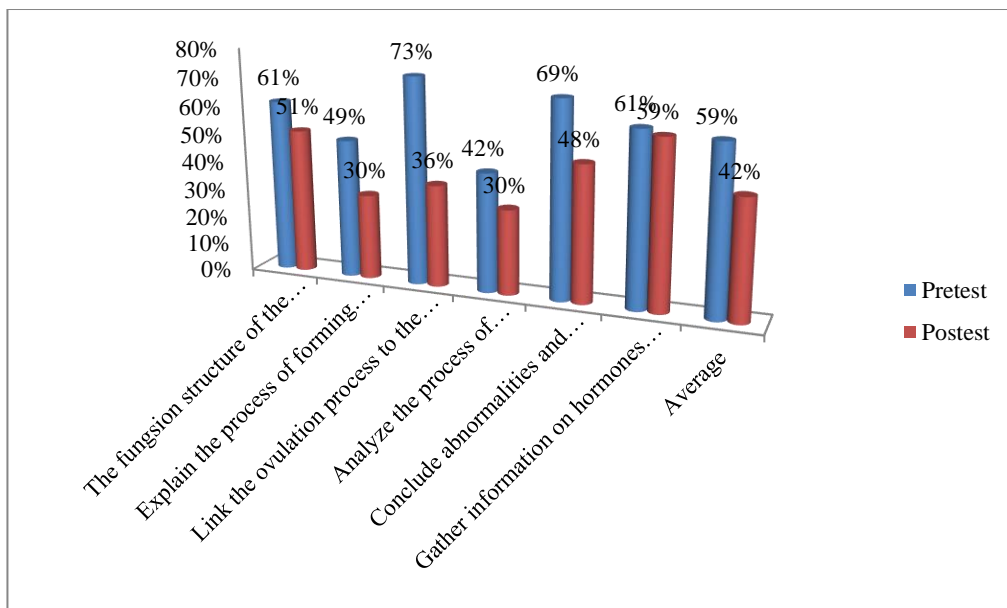

Figure 3. Percentage reduction of misconception for each indicator in Senior High School 2 Sekampung
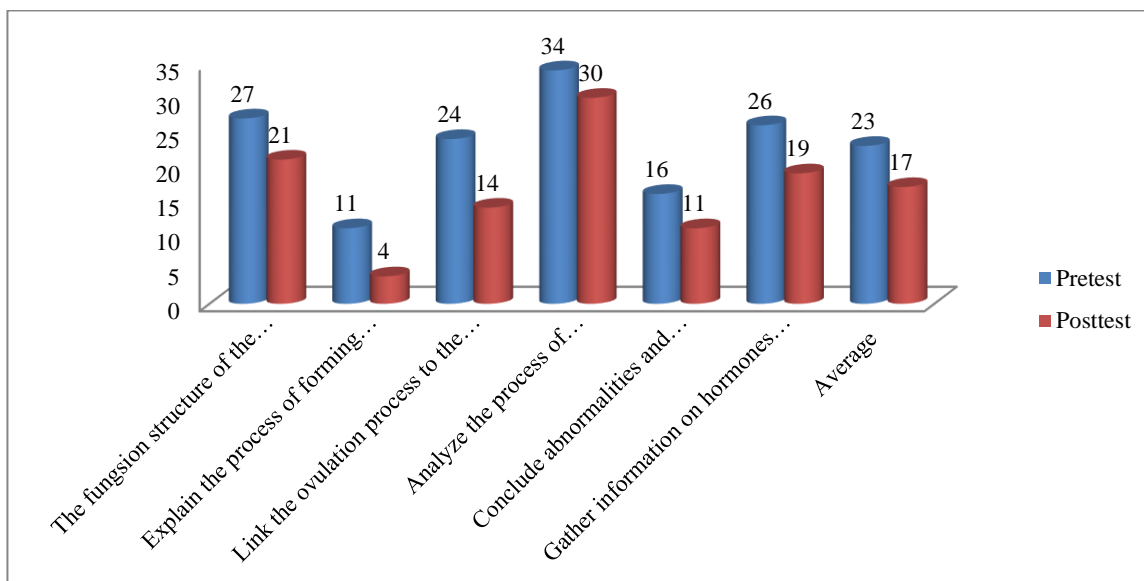
Figure 4. Percentage reduction of misconception for each indicator in Senior High School 1 Negara Batin

Based on Figures 2, 3, and 4, shows that the misconceptions of students in three schools, namely Islamic Senior High School 1 Bandar Lampung (Figure 2), Senior High School 2 Sekampung (Figure 3), and Senior High School 1 Negara Batin (Figure 4) on each indicator item decreased after using conceptual changes. Because a conceptual change model can cause conflict in students where student's knowledge is contrary to new knowledge and can help students correct that false knowledge (Rachmawati & Supardi, 2021). It agrees with Santyasa (2007) that the conceptual change model can help learners change through the concept change process students take before learning.

The learning process uses conceptual change through several stages, the presence of conceptual and contextual problems, confrontation of misconceptions related matters, the opposition of confrontation with a demonstration of strategies, analogies, and opposing examples, scientific evidence of concepts and principles, the existence of contextual materials and samples, and confirmation through questions to expand meaningful meaning and application of knowledge (Rizaldi et al., 2019). At the first stage, the presentation of conceptual and contextual problems. The teacher gave an example of the problem with the reproductive system matter in daily life. Students give his or her opinion on their knowledge so that the process of assimilation can occur. Hidayatullah in his research states that through assimilation, students will use this initial knowledge to deal with new concepts. This activity shows that there has been a cognitive conflict in students (Hidayatullah et al., 2020).

At the confrontation stage of misconceptions-related matters, the teacher provided examples on the LKPD sheet. Students answer the questions on the LKPD sheet using the knowledge they have. The students answer the LKPD by conducting group discussions, looking for answers via the internet or biology textbooks. In this activity, students are not allowed to use the adobe Quran. If they do, they will copy the answer from the adobe Quran to the LKPD. In the phase of the opposition of confrontation demonstration of strategies, analogies, and examples against which students are faced with the accommodation phase, conceptual change

occurs when the knowledge possessed by the student conflicts with new learning. According to Makhrus, Nur, and Widodo, their states that when "student knowledge contradicts new knowledge, it will cause conflict which helps students to fix what they believe so can be correcting that false belief with existing evidence."(Makhrus et al., 2014)

At the stage of proving scientific concepts and principles and presenting contextual material and examples, the teacher provides the adobe Quran to help students understand the correct conceptions. At this stage, the teacher gives a material proven using the adobe Quran. In the syntax of confirmation through questions to expand meaningful meaning and application knowledge. The teacher asks students to connect each concept from the beginning to the end of the learning.

The misconception is not only caused by a student's initial conception before school learning activities and may occur because of some other aspects such as self-regulation, self-efficacy, and self-confidence. Islamic Senior High School 1 Bandar Lampung (Table 6) and Senior High School 1 Negara Batin (Table 8) have high self-regulation and self-confidence before studying, while in Senior High School 2 Sekampung (Table 7), they have sufficient self-efficacy before studying. Madrasah Aliyah 1 Bandar Lampung and Senior High School 1 Negara Batin experienced a slight increase in the percentage of self-regulation and self-confidence, while Senior High School 2 Sekampung experienced a higher percentage increase. Based on the hypotheses using the one-sample t-test suggests that conceptual changes are effective in raising self-regulation, self-efficacy, and self-confidence with sig (2-tailed) values of $0.000 \leq 0.05$ (Table 12).

The result of self-regulation, self-efficacy, and self-confidence at the current three schools at table 6, table 7, and table 8 indicates that while students have high emotional aspects, it isn't a guarantee that students don't experience misconceptions. They can significantly affect misconception reduction. So with the help of conceptual change models using the adobe Quran, students can maintain and enhance those emotional aspects and reducing misconception. Students were given a questionnaire at the beginning and end of the lesson. The questionnaire used adjusted to the material of the reproductive system.

Self-regulation, self-efficacy, and self-confidence increased in the three different schools can be seen in detail in the percentages of each indicator on the questionnaire. The index of self-regulation is plan effective (planning), wake up and use sources of information (resources), and sensitivity to giving feedback (Robert J Marzano, 1994). Self-efficacy, there are three dimensions of level or magnitude, a generality dimension, and strength dimension (Bandura, 1986). The indicator of self-confidence is confidence in one's abilities, optimism, objectivity, responsibility, and rationality (Fitriani, 2015). The percentages of aspects of influence from the three schools for each indicator shown in Figure 5. self-regulation, Figure 6. self-efficacy, and Figure 7. self-confidence.

Figure 5, Figure 6, and Figure 7 show an increase in each indicator. Each indicator increases this because, at the time, the student's learning process applies a conceptual change using the adobe Quran very well.
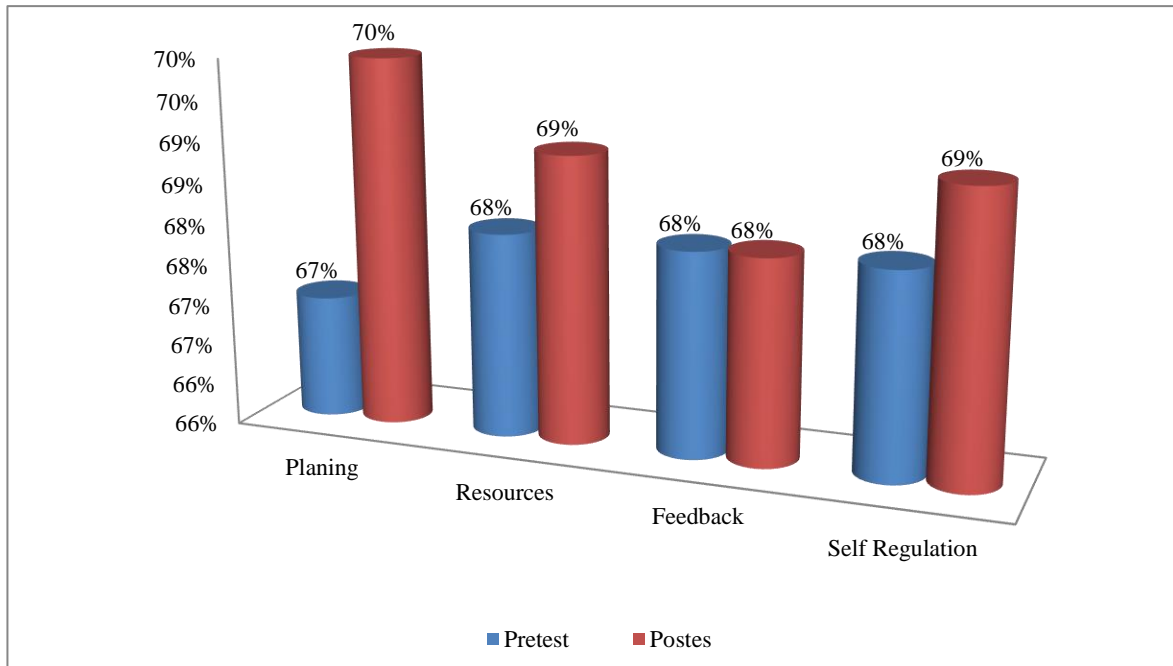
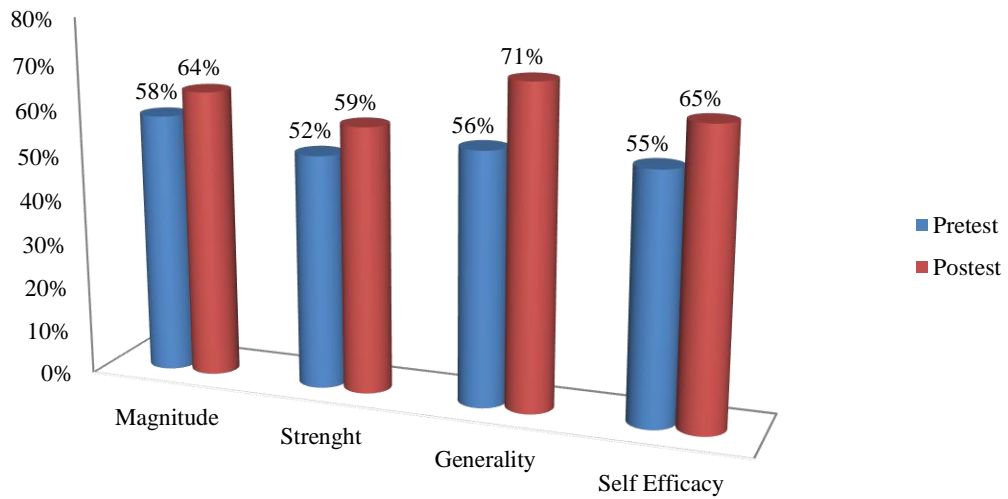**Figure 5.** Percentage of Self-Regulation in Islamic Senior High School 1 Bandar Lampung

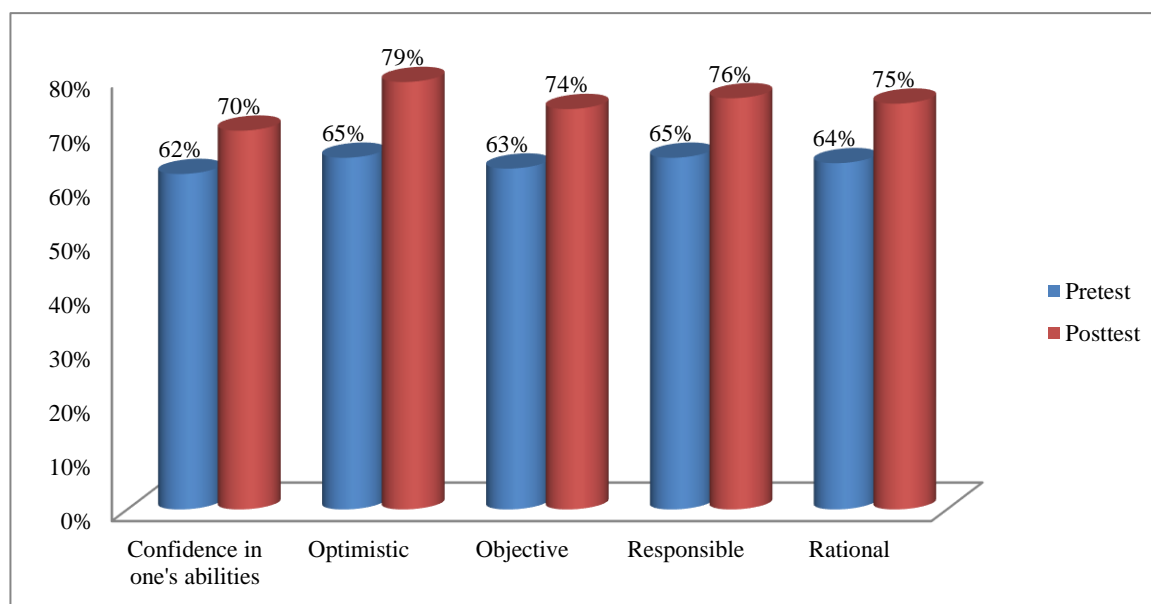**Figure 6.** Percentage of Self-Efficacy in Senior High School 2 Sekampung

Figure 7. Percentage Self-Confidence in Senior High School 1 Negara Batin

Figure 5, Figure 6, and Figure 7 show an increase in each indicator in the three questionnaires. Before applying the conceptual change using the adobe Quran, students already had high self-regulation, self-efficacy, and self-confidence. So there was a very significant increase before and after applying conceptual change using the adobe Quran. It's in line with the research of Rahmawati and Partana in their research android use of media tends to be better than conventional learning (Rahmawati & Partana, 2019). The student's success in studying is an indication that students understand every concept of lessons. If the student has high self-regulation, self-efficacy, and self-confidence, he has a high concept of understanding. So misconceptions could be reduced (Nastuti et al., 2018).

Based on the description above, the results are that conceptual changes using the adobe Quran can help reduce misconceptions and increase self-regulation, self-efficacy, and self-confidence in biology class XI. The conceptual change model used is accompanied by the adobe Quran. The adobe Quran presents learning materials accompanied by learning videos and verses of the Quran with the interpretation of each verse besides that adobe Quran presents the latest info on reproductive system material. In carrying out the research, there are some obstacles in giving students the adobe Quran because the study is online. So the adobe Quran is given via screenshot through the Whatsapp Application.

Conclusion

The conclusions of this study are: (1) there was an effect of conceptual change using the adobe Quran on the reduction of misconceptions**.** This is because if the knowledge possessed by students conflicts with the new knowledge, it will cause a conflict that requires students to correct the false knowledge with existing evidence. (2) there is an effect of conceptual change using the adobe Quran on self-regulation, self-efficacy, and self-confidence. Because using conceptual change models using the adobe Quran can help students both maintain and enhance the emotional aspects they own. The process takes place in the

composition of the opposition of confrontation with a demonstration of strategies, analogies, and opposing examples. This study concludes that the conceptual change model using the adobe Quran can reduce misconception and increase self-regulation, self-efficacy, and self-confidence. The researcher suggests applying the conceptual change model using adobe Quran to other learning materials so that it can help in reducing misconceptions in other learning materials.

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