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Islamic Education Subject Teaching Design Based on Brain Based Learning to Improve the Critical Thinking Ability of Students' Elementary School

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ABSTRACT

The study was aimed to determine; (1) how is the design of the development of the Brain-Based learning model that can improve the students' critical thinking skills at elementary school, (2) what is the feasibility of the Brain-Based Learning model can increase the students' critical thinking skills at elementary school, (3) how is the effectiveness of using the Brain-Based learning model can develop the students' critical thinking skills at elementary school. The research was R&D adopted from Borg & Gall model. Model validation was expert judgment. Model testing was using a quasi-experiment through pretest and posttest. The trial conducted for class V for two elementary schools in the Curup area. The data were obtained through observation and questionnaires. The data analysis was carried out through the average score and per cent. From this development research, a model design was generated Brain-Based learning to improve critical thinking skills namely, preliminary activities, core activities and final activities. Meanwhile, based on the results of the trial model, it showed that (1) the Brain-Based Learning model met the feasible criteria as indicated by the expert and practitioner's assessment with the mean of 3.63 and 3.43, with a good category. (2) the effective of Brain-Based Learning fulfils criteria indicated by the average result of student activity in learning 34.00 with a good category. The positive response to the implementation of learning obtained a mean of 4.33 with a happy/agreeable criterion. The students' achievement learning competence from the two classes trial with mean scores was 76.33.

Keywords: *Brain-Based Learning, critical thinking, Elementary, Islamic Education*

1. INTRODUCTION

The era of globalization is an era of integration because of everything based on how the brain works. However, several studies found that humans have only maximized 5% of their human brain (Sesmiarni, 2013). Humans though have great brain potential used optimally. This potential does not develop due to various factors that including how teachers teach in school, how parents educate, and environmental treatment of each individual. The reality of Indonesian education in the current industrial era 4.0 demands that students must be able to communicate, collaborate, think critically and solve problems, have innovative creativity and self-confidence in learning.

The results of observation in the preliminary study found that the implementation of learning activities carried out on the teacher's centred. Learning activities still reflect teaching that has not yet been taught in which the teacher was a learning source, and the students did not inactivate in

teaching and learning. Teachers have not to position as students' centre learning approach. As the result, students are passive in class, stiff, and fixated. Teachers have not interacted and move flexibly in learning. Teachers were sitting in front without any movements to the students. Students only follow the teacher in the learning process as the teachers' wishes. In addition, learning is not to follow the characteristics of students and Islamic education subjects. The learning process had not familiarized for students with learning patterns such as describing opinions, asking questions, analyzing problems, seeking information, observing and solving problems.

This condition is opposite the purpose of Islamic education subject is to produce people who fear Allah, have a noble character, are honest, fair, respectful, disciplined, harmonious, and productive, both personal and social (Djaelani, 2013). The teaching goal can be realized by involving students in learning. So Islamic education needs to be taught as contextually so that it affects these goals. Maximizing the success of learning in the classroom should be done from the age of the elementary school because this level will determine success at the next level. Therefore, it is time to change the mindset of teachers who still think that students are students who do not know anything about the material, it must be changed so that children have the potential with all the intelligence and strength they have.

In line with the taxonomy of Islamic education goals, traditionally, consists of three dimensions, namely deity, humanity and the universe. (Fuad, 2014). It means that the Islamic education subject matter should apply these teachings in an integrated manner. One of the uniqueness and intelligence of students boils down to their brains. The teaching paradigm oriented towards the formation of intelligence should refer to the functioning of the brains as a whole. However, the attention of Islamic education to neuroscience partially still has implications for the separation of the three types of human intelligence (IQ, EQ, SQ) in the process. (Suyadi, 2012). Islamic education prioritizes the development of reason. According to Daming (2016), Intelligence intellect is one of the human capacities as a tool and a scale of knowledge to understand right and wrong.

Islamic education also emphasizes the importance of developing thinking skills as in QS. al-Anfal verse 22 explains "Verily, the worst creatures with Allah are people who are mute, deaf, who are not good at using their minds". Apart from that on QS. Yasin verse 68 also explained, "Whoever we extend the age we will return to the incident, then do they not think"(Fuadi, 2013). According to this verse, thinking is a mental processing activity that requires memory and understanding skills. Thus, the information does not become knowledge until the human mind can analyze and apply it to life.

Learning that is based on the needs and characteristics of students brings activeness and is student-centred can be developed with Brain-Based Learning. Brain-Based Learning is a student-centred learning model, which is conceptualized based on the abilities and characteristics of students. As Jensen (2009) explained that the hope of improving students' brain chemistry can be done by improving mood and persistence so that learning outcomes increase. Sodikin (2012) the research results explain that the model brain Based Learning is a learning model considered appropriate to increase student activity, challenging critical thinking skills in Islamic education subjects. In line with research results. Utomo (2017) stated the critical thinking is a logical consequence of brain-based learning because critical thinking involves thinking ability to respond and argue.

Learning model development Brain-Based Learning brings a new atmosphere to the Islamic Education of the teaching process. Brain-Based-Learning is a process undertaken to create learning by placing students as one of the most crucial objects in education. Teaching activities lead students

to learn in totality and make Islamic Education as part of real life. The implementation of brain Based-Learning will create the positive and comfortable emotional, cultivate a collaborative social climate, students' ability to ask questions, reason and create (cognitive), products/works (physical)and guide students to reflect (reflect) on their success. All processes conceptualized starting from planning, implementation and evaluation

2. LITERATURE REVIEW

The brain is the most complex part of the human body. The only organ that is constantly developing so that it can study itself. According to Vishton (2016), the human brain is a network of about 100 billion neurons that are interconnected. The connections between the neurons of the human brain number in the trillions. The brain is a vital part of the human body because it controls all body activities, including emotions, intelligence, and stores memories (Adji, 2011). Kris (2018) defines the human brain as a mass of neural networks in the head. While Darmadi (2013) describes the brain as a unit consisting of the left and right hemispheres which are the center memory, cognitive, emotional and all kinds of feelings and cognition, so how they work has different functions.

The above opinion is relevant to the expression DN Kuria, (2010) that the human brain or cerebral cortex is the largest part of the brain and controls memory, sensory interpretation, and higher-order thinking. he human brain is responsible for conscious thought, perception, thoughts, emotions, and consciousness of brain structure. Richard (2011) explained consists of four parts, namely; First, the cerebrum (forebrain) functions in the thinking process. Second, the hindbrain, which role as a regulator of physiological reflexes. Third, the midbrain, which role as a counterweight and hearing, and Fourth, the cerebellum, functions as a coordination center for muscle movement, and a balanced center. While Jensen, (2005) said, the cerebrum consists of four main parts called lobes (lobes); namely the frontal lobe (front), parental lobe (middle), temporal lobe (lower-part) and occipital lobe (rear).

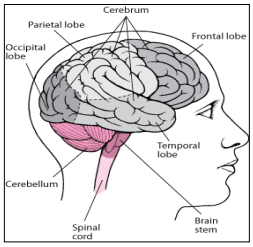

Figure 1.1 Parts of the Human Brain

The frontal lobe is a lobe located at the very front of the cerebrum. This lobe is associated with the ability to make reasons, mobility, cognition, planning, problem-solving, giving judgment, creativity, control of feelings, behaviour, sexual and language skills. The parietal lobe is the area in the middle of the brain, associated with sensory processes such as pressure, touch and Islamic education subjectn. The temporal lobe is the area in the lower part of the brain associated with the ability to hear, interpret information, and language in the form of sound. The occipital lobe is the area at the very back of the brain, associated with visual stimuli that allow humans to interpret objects captured by the retina of the eye.

Apart from the above parts, the brain divided into two hemispheres, namely the left brain and the right brain, each of which is responsible for a different way of thinking. The left brain is logical sequential, linear and rational. The right brain is random, disorganized, intuitive and holistic. Both hemispheres are important to improve intelligence and success rate. People who are able to use the two hemispheres of the brain proportionally tend to be balanced in every aspect of their lives.

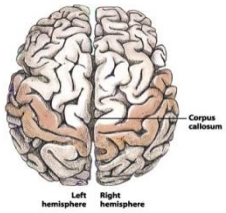

Figure 1.2 Hemispheres of the

Therefore, learning activities must pay attention to the two hemispheres of the brain, because the level of intelligence that can be achieved by students, and it determined from here.

Brain-based learning is principles that come from understanding the brain (Utomo, 2017). Brain-based learning is a way of thinking about the natural learning process using the workings of the human brain. It is not a panacea, nor is it a solution to all our problems. It is not a program, dogma or a recipe for teachers are not a trend or a gimmick. (Jensen, 2008). According to Uzezi & Jonah, (2017) effective brain-based learning creates the success of positive learners. NextPalitano & Paquin (2000) revealed that brain-based learning was used as a natural way, motivates, and maximizes positive teaching and learning through the best approach based on the way the brain learns. Brain-based teaching involves applying carefully designed principles that take into account their impact both before, during and after the learning process (Akyurek & Afacan, 2013). Scaddan (2009) said: "our brain is affected by many cycles during the learning day". The brain is designed and created to learn all the time(Windura, 2013). Brain-based teaching can facilitate critical thinking, both at the stage of generating ideas and also in defending them (Costillas, 2016).

According to Given (2002) , the Base learning on how the brain works is multidisciplinary based on cultivation emotional, social, cognitive, active and reflective. The brain's emotion learning system is a claimant system. This system must be comfortable before the mind can engage in cognitive learning (Sesmiarni, 2013). System social learning wants affiliation and hopes to be respected and acknowledged by all group members soul differences in the classroom context are accepted as fellow gifts to be appreciated (Sesmiarni, 2016). The cognitive learning system is an information processing system in the brain. This system absorbs input from the outside world and all other systems, interprets that input, and guides problem solving and decision making (Given, 2002). The brain's physical learning system involves the process of interacting with the environment to develop new knowledge and skills, the brain's physical learning system converts desire, vision and intention into action, because of this operating system driven by the need to do something. The reflective learning system is a learning system that monitors and regulates the activity of all other brain systems. The reflective learning system requires students to understand themselves, and developed through trial and error with various learning methods.

Thinking is the process of transforming information into memory (Mulyono, 2016). Thinking is used by someone to solve problems, make decisions, generate new ideas, and creativity (Kallet, 2014). Critical thinking is sensible reflective thinking focused on deciding what to do (Fisher, 2012). Critical thinking a meaning sensible thinking and reflection focuses on deciding what to do (Ennis, 1989). Critical thinking is self-regulation in deciding (judging) something to produce interpretation, analysis, evaluation, and inference as the basis for determining a decision. (Facione Peter, 2015). Be critical thinking is also a skill argue rationally to find the truth of a view (Sihotang, 2012). Based on this opinion, think critically requires engaging in reflective and productive thinking to evaluate evidence (Santrock, 2011).

Critical thinking skills must be instilled from an early age. Research conducted (Lloyd & Bahr, 2010) recommends the importance of training students' critical thinking skills from an early age. Further research results Miguel & L´opez (2016), reveals that there are significant differences were shown by children who were facilitated with critical thinking skills from an early age with those who were not. Critical thinking facilitates the characteristics of activities think which covers; analysis, synthesis, introduction and problem solving, conclusion and assessment (Alhamuddin & Bukhori,

2016). Therefore, critical thinking skills need to be considered in the curriculum content. Bailin, Case, Coombs, & Daniels (2017) "Critical thinking skills in elementary schools must be integrated into the curriculum and learning activities in class. It was emphasized again by (Facione Peter, 2015) from the results of his research that critical thinking skills should be emphasized since childhood and taught in schools based on the K-12 curriculum according to the level.

According to Ennis (1989), there are 12 indicators of critical thinking which are grouped into five major activities as follows; (1) Provide a simple explanation; (2) Build basic skills; (3) Concluding; (4) Provide more explanation; and (5) Strategy and tactics. Then indicators think critically according to Facione Peter (2015) in the research results include; (1) Interpretation; (2) analysis; (3) evaluation; (4) inference; and (5) explanation.

Islamic Religious Education is one of the learning programs in elementary schools which has a strategic and significant role in shaping students to become people who are faithful, knowledgeable and have true Muslim personalities.(Sanusi & Suryadi, 2018). Islamic Religious Education is a process of conscious guidance of the physical and spiritual development of students towards the formation of the main personality (Daulay, 2014). The purpose of Islamic Religious Education is to cultivate and increase the faith of students through the cultivation of knowledge, experience so that they become Muslim humans who continue to develop in faith, devotion to Allah Almighty, and have noble morals in the personal life of the community, nation and State(Suryana, 2016). The inculcation of religious values in children can be implemented through; introducing the existence of God, introduction to worship of Allah Almighty and instilling good morals(Firdaus & Jani, 2013).

Broadly speaking, the themes of Islamic education in elementary schools include (1) Akidah Akhlaq, namely; emphasis on the ability to understand and maintain belief in Allah SWT; (2) Qur'an hadith, namely the ability to read and write well, understand the meaning textually and contextually, and practice its content in everyday life; (3) Fiqh, which is a subject directed at preparing students to be able to recognize, appreciate and practice Islamic law which is the basis of their way of life; and (4) The history of Islamic culture, which is part of the islamic education subject aimed at preparing students to have an understanding of the activities carried out by Islam and Muslims.

3. METHODOLOGY

This research is development research that applies the Brain-Based Learning learning model to improve the critical thinking skills of elementary school students. The research approach used is descriptive-quantitative. This research approach used to investigate the implementation of Brain-Based Learning starting from planning, implementation and evaluation. The subjects of this study were students of SDIT grade V Islam Rabbi Radiyya and SD 02 Rejang Lebong semester II 2019/2020. The total of the sample is 41 students. islamic education subject material which developed is about "QS AL-Ma'un".

The research design used for the trial was a one-group pretest-posttest design, with a research instrument in the form of a set of questions used to measure students' critical thinking skills with a Brain-Based Learning approach and a questionnaire to assess student activity. The research conducted four times, and pretest and posttest twice to determine the increase in students' critical thinking skills. The multiple-choice questions test consists of 15 questions, while the student activity questionnaire consists of 10 questions. The pretest and posttest design can be explained as follows;

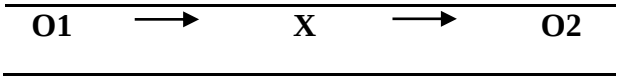

Figure 1. One Group Pretest-Posttest Design (Sugiyono, 2015)

Explanation:

O1 = pretest (before treatment)

O_2 = posttest (after treatment)

X = treatment

The improvement of students' critical thinking in Islamic Education lessons is interpreted using N-gain analysis by Hake (2002) with the following categorizations;

Table 1. The Categorization of Normal N-gain

Value N-gain	Criteria
0.00 <N-gain <0.30	Low
0.30 <N-gain <0.70	Medium
N- gain> 0.70	High

4. RESULT AND DISCUSSION

Based on the results of a document review of 10 teachers in planning Islamic Education learning in elementary school still based on the old planning. In general, teachers make plans not based on objectives, but still based on the material to be delivered. Besides, most teachers use the same learning resources and facilities in their competency demands are different. From the planning assessments made by the teacher, there are the following: (1) writing core competency and base competency are in accordance with the 2013 Curriculum, however, the formulation of indicators is still not operational. In addition, in developing and organizing the teaching materials is in accordance with it. However, in determining learning strategies and methods there is still one type, namely lectures. In terms of designing scenarios or the steps for detailed learning activities, starting from preliminary, core and final activities; (2) The planning prepared by the teacher has not made use of environment-based learning resources following core competency, material and student development levels. Generally, there is only one type of learning resources, namely sourcebooks. Besides, what is still lacking is the planning of the media / assistive devices. Generally, the teachers have not included the media in the planning; and (3) the indicator of student organizing is still classical, sitting in a row according to the class in general. In planning, there is still no picture of the development of a reading and writing culture that should have been nurtured from the start. Based on the description of the data above, it can be said that some teachers have planned optimally.

Based on the facts obtained in the field from observations and interviews, the researchers conducted a needs analysis by distributing questionnaires aimed at teachers and students in 10 elementary schools observation related to the things needed to improve Islamic Education learning. Based on the data analysis of the needs of teachers and students, the data obtained:

Table 1.1 Summary of Product Needs Analysis Results Addressed to Teachers

No.	Question	Answer Options	
		Yes	Not
1	Do you think that Islamic subject is difficult for students to understand?	10	90
2	Do you think that students do not like Islamic Studies lessons?	20	80
3	Do you have difficulty describing real examples of Islamic education in life	20	80
4	Are you a teacher giving Islamic subject questions in the form of a narrative/story	10	90
5	Do students know the use of Islamic subject in everyday life?	35	65
6	Does the application of critical thinking to students need to be implemented	100	-
7	Do you need examples of critical thinking questions in Islamic subject?	100	-
8	Have you ever compiled Islamic subject questions using argument stimuli?	80	20
9	According to you, do Islamic subject need to be connected with student life?	100	-
10	Does your school use the Brain-Based Learning model?	80	20

Based on the results of the needs analysis aimed at 10 teachers as respondents, it is known that 80% of teachers said the Islamic subject learning process had never been carried out with the Brain-Based learning model and the learning process had not applied critical thinking processes, although 55% of teachers said that the learning process of Islamic subject was brain-based in other forms (such as inquiry and contextual), meaning that a solution is needed to provide an easy way for students to find it easy to understand Islamic subject lessons, especially in its application in everyday life. Regarding the implementation of Islamic Education learning with the Brain-Based Learning model, 70.4% of teachers stated that they agreed to carry out ISLAMIC EDUCATION SUBJECT Brain-Based Learning in the Needed category, although 17.6% of the teachers stated that they did not agree (did not need it).

Table 1.2 Summary of Product Needs Analysis Results Aimed at Students

No.	Question	Answer options	
		Yes	Not
1	Do you like Islamic subject lessons?	25	75
2	Do you think Islamic subject lessons are difficult/boring?	65	40
3	Do you know the use of Islamic subject in your daily life?	40	
4	Do you think the teacher/teacher teaches Islamic subject fun	75	35
5	Have you ever invited you to study Islamic Education outside	15	85

	the classroom?		
6	Have you ever been invited by you to make observations (interviews)?	-	100
7	Have you ever solved Islamic subject questions that required the ability to analyze, evaluate and solve problems on the students worksheet	25	75
8	Are you confused about understanding the Islamic subject material?	80	20
9	Do you agree with the fun Islamic subject learning model?	90	10
10	Do you agree if Islamic subject lessons are accompanied by practical activities?	65	35

Based on the results of the needs analysis above aimed at 89 students as respondents, it is known that 65% of students are bored with the Islamic subject learning system developed by teachers so far, this is in line with students' answers who said the teacher had not taught Islamic subject in a fun way. Then, 67.74% of students agreed that learning Islamic subject was carried out through the Brain-Based Learning model with the categories needed, although 16.94% stated that they did not agree (did not need it). Based on this condition, the researcher tries to gather all the data, the results of previous research, observations, interviews and questionnaires to find a suitable model design for students.

It can be concluded that the learning process has been running according to optimal planning. However, it is necessary to strive for the participation of students in the learning process so that Islamic Education learning becomes meaningful. Thus, the Islamic subject learning model based on Brain-Based Learning is relevant to be developed.

4.1 Draft Islamic subject Learning Model based on Brain-Based Learning

Sticking to the data obtained from field surveys and referring to the basics of concepts inferred from the results of the literature study, a draft learning model will be developed. Based on the results of the literature study, both from conceptual or theoretical conclusions, a draft of the design of the Islamic subject learning model based on Brain-Based Learning was made by formulating Borg and Gall, Dick and Carey, Given and Jensen which was developed and presented in three stages in developing Islamic subject learning materials based on Brain-Based Learning, namely planning implementation; and evaluation.

4.2 Planning stage

conducted to obtain information about Islamic Education learning. This study includes a literature review and field observations. The literature review is a study of various relevant theories to find a theory that supports the need for model development. Meanwhile, field observation is an activity to identify the learning needs needed by teachers and students. These observations were made through teacher and student interviews.

Broadly speaking, several things are done during the field study, namely: (1) conducting a learning analysis; (2) identify student behaviour and characteristics; (3) developing learning strategies; (4) compile a syllabus and lesson plans; and (6) making learning modules and worksheets.

4.3 Implementation stage

It is the second stage after planning. Implementation starts from: (1) creating positive and comfortable emotions (emotional); (2) fostering cooperative (social) activities; (3) creating students' ability to question, reason and create (cognitive); (4) creating (physical) products / works; and (5) able to conclude (reflection). Based on the activities at the implementation stage, the syntax for the implementation of the Brain-Based Learning learning model is compiled which includes the preliminary, core and final stages, namely orientation, initiation, elaboration, incubation, verification, integration.

4.4 The evaluation stage

It is the stage of research carried out to assess the progress and learning outcomes of students. This evaluation includes (1) formative tests; (2) Tasks and (3) Performance.

The draft model was then reviewed by curriculum experts, education science and Islamic education experts as well as 3 senior teachers who have experience in teaching. The input from these experts is the basis for making model improvements. Expert input is related to clarity at the planning, process and evaluation stages. The draft model above is the final draft which will serve as a guide for implementing Brain-Based Learning models.

4.5 Student Activities in Islamic education subject learning based on Brain-Based Learning

Observation of student activities in the application of the Islamic subject learning model based on Brain-Based Learning to increase critical thinking skills was carried out by researchers themselves. This was because Islamic subject teachers in elementary schools who were the objects of research were asked to collaborate in displaying the Islamic subject learning process. After all, the learning process that used Brain-based model learning was still new, so direct assistance was required for the teachers. The results of the analysis of student activities in developing the Brain-Based Learning model are shown in the following table;

Table 2. Results of student activities in brain-based learning

No	**Student Activities**	**Observation result**			**Criteria**
		1	**2**	**3**	
1	Identifying problems based on worksheets			4	Very good
2	Asking questions as a form of curiosity			4	Very good
3	Finding simple reasons regarding given cases		3		Good
4	Gathering information through various literature from libraries, journals and the internet	2			Enough
5	The showing simple solution to a case		3		Good
6	Cooperating in finding answers to problems as a group		3		Good
7	Conducting discussions according to cooperative procedures			4	Very good
8	Responding well to other students' opinions			4	Very good

	without discriminating against race (friends)				
9	Collecting and demonstrating the impact of a case from the experimental results in a simple way.		3		Good
10	Presenting group work results		4		Good
	Total Activity Journal	**2**	**16**	**16**	**34.00**

Based on the results of the above observations, an average of 34.00 was obtained in the good category. This shows that the learning objectives were achieved and made students active during learning. According to Sita's research (2019), students are said to be active when the overall activity is above 50%. Students also seemed to be active in following all the learning steps according to the Brain-Based Learning syntax. Increases also occurred when group discussion activities including providing responses, analyzing material, asking questions and showing problem-solving to given cases, so that the implementation of Brain-Based Learning on ISLAMIC EDUCATION SUBJECT material could improve students' thinking abilities. Learning activities are effective and meaningful when students actively contribute and are involved in the learning process. Activities are independent in learning activities, as Hidayah &

4.6 The Increase of Students' Critical Thinking Ability

Based on the results of the posttest which was carried out in elementary school grade V, the results showed the increase of students' critical thinking skills in islamic education subject subjects using Brain-Based learning in each given posttest. To find out the extent to which students' critical thinking skills increased in islamic education subject learning before the islamic education subject learning process based on Brain-Based Learning was implemented, students were first given a case as a stimulus to arouse curiosity so that thinking powers were provoked and became a sustainable culture. The stimulus was integrated from the social context of the students' daily lives. Stimuli developed in the form of short stories, stories, daily news from newspapers, regional magazines as well as history and current events were presented closer to the students. In the learning process, Students could identify causes, provided simple arguments and expressed reasons, and made decisions about what was best to do from these activities. Then, the students were given a critical thinking ability test. The results of the increase in students' critical thinking skills based on the tests carried out were presented clearly in the following table 2:

Table 2. Summary of result critical thinking ability test

	Average of Pretest		**Average of Post-test**	
	1	**2**	**1**	**2**
SD IT RR	28.57	46.03	58.41	77.14
%		38%	21%	24%

Increased				
N-gain			0.42	0.52
SD 02 RL	23.33	42.00	53.33	78.33
% Increased		44%	21%	32%
N-gain			0.39	0.62

Based on the data above, it can be seen that the average pretest score is still low. This is because students were not used to doing critical thinking questions. Besides, the critical thinking questions presented had a case stimulus that requires students' reading culture (literacy) to be improved. Even so, from the data presented, it seems that there was an increase from the first pretest to the second pretest of 38% at SD IT RR, and 44% at SD 02 RL although the increase is not so significant. Furthermore, the students were given a learning process based on Brain-Based Learning to improve thinking skills in each posttest. So it can be seen that the average posttest score increases on each test because students had started to get used to critical thinking questions and was strengthened by the implementation of learning with the use of visual and audiovisual, stories and stories that made students felt like experiencing themselves when reading questions of critical thinking.

In the first posttest, islamic education subject critical thinking questions were arranged with the distribution of material from several fractional sub-chapters to determine the readiness of students in receiving questions from the material previously presented by the teacher. The results of the first posttest showed that the average score was sufficient but not maximum, even though the increase in the previous pretest average score was 21% at SD IT RR and 21% at SD 02 RL. This is because students were getting used to the contextual Islamic education subject problems that were presented as a stimulus. However, in this first post-test, the students were not too prepared with critical thinking questions that contained the distribution of material from several fractional sub-chapters, so that students did not focus because the context was everyday learning where students usually only got one sub-material.

Furthermore, this Brain-Based Learning model was effective after the questions were designed for one sub-material about understanding the meaning of QS Al Maun. The students obtained the average score which was better improved than the first posttest. This was because the material given focused only on one material, and students began to get used to critical thinking problems. In the second posttest, there was a 24% at SD IT RR and 32% at SD 02 RL increase in the first posttest. While the results of N-Gain on the first pretest-posttest obtained 0.42 at SD IT RR and 0.39 at SD 02 RL, the second pretest-posttest obtained 0.52 at SD IT RR and 0.62 at SD 02 RL, and both are in the medium category.

5. CONCLUSION

Islamic education subject learning which was carried out using Brain-Based Learning was implemented in three stages, namely, planning, implementation and evaluation. Each stage was

properly carried out following the Brain-Based learning steps. This can be seen from the results of observations of student activity in the good category that means students actively participate in Islamic education subject learning using Brain-Based Learning to improve critical thinking skills. This means that this model has a positive impact on Islamic education subject learning. Besides, the improvement of it learning based on Brain-Based Learning can be seen in the two posttests, as well as the normalized N-Gain results which are in a high category. Based on researchers' observations during the learning process, the thing that teachers must do to support the effectiveness of the implementation of Islamic education subject learning using the Brain-based Learning model is that the teachers should have an understanding of brain theory. The Brain-Based Learning Model for learning in schools requires teachers to present innovative learning resources based on their surroundings. An understanding of multidisciplinary Brain-Based Learning makes this model not rigid to be applied to other Islamic education subject sub-materials. Various learning methods can be applied in the Brain-Based Learning model both indoors and outdoors. The advantage of this Brain-Based Learning model lies in the characteristics of a system-oriented model, which can be a reference for any new models that will be developed, showing the stages arranged in detail. These advantages make the model acceptable and applied to various other Islamic education subject sub-materials and have a major influence in the world of education in Indonesia, especially in improving the quality of Islamic Education learning. The weakness of this model is that when the teacher's understanding of brain theory is minimal, the teacher finds it difficult to recognize students' boredom / overwhelming learning. If this is allowed, the student's concentration will decrease along with the fatigue they experience, so that the learning process continues without giving the brain a break for a moment. In addition, teachers need to understand the balance of the right and left brain while learning.

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