



High Order Thinking Skills (HOTS) in Learning the History of Islamic Culture Based on Neuroscience

Khalid Rahman ¹, Xie Guilin ², Usmaedi ³, Salis Irvan Fuadi ⁴, Deng Jiao ⁵

¹ Universitas Brawijaya, Indonesia

² University of Science and Technology of Hanoi, Vietnam

³ Universitas Setia Budhi Rangkasbitung, Indonesia

⁴ Universitas Sains Al-Qur'an, Indonesia

⁵ Universiti Sains Malaysia, Malaysia

Corresponding Author: Khalid Rahman, E-mail: tlq@ub.ac.id

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ABSTRACT

One of the problems with students' skills regarding learning the history of Islamic culture in madrasas is the problem of memorization and student boredom in learning, which can be seen as the basis of this learning. Many students consider it very boring because there is a lot of memorization and reading, for this reason teachers always try to develop brain abilities (neuroscience). Children in learning, where humans have different nervous system structures that can be developed, such as cognitive, affective and psychomotor aspects, and teachers also try to apply various methods in teaching so that students do not get bored in learning. In this regard, this research is intended to reveal how HOTS is used in learning the history of Islamic culture based on neuroscience. This type of research is quantitative descriptive, using Survey and interview methods, namely interviews with teachers of the history of Islamic culture and homeroom teachers as informants in interviews about neurosis in developing students' skills in understanding learning the history of Islamic culture. In this study, researchers obtained results that students were able to apply their thinking, not just remember, restate or express thoughts without processing or observing. To assess student learning outcomes in studying the history of Islamic culture, it is necessary to improve neuroscience to find out students' skills and thinking patterns. The limitations of this research are that the research object focuses on students who already have open minds and find it a little difficult to accept suggestions and responses that differ from their thinking, as well as the process of collecting student data regarding interest in learning the history of Islamic culture also occurs problems, because The researcher hopes that future research can further develop students' skills in HOTS problems.

Keywords: HOTS, Islamic, Neuroscience

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INTRODUCTION

Education is something that is very important in human life, be it social, political, economic, cultural and religious education (Sharfuddin, 2020). Religious education, such as studying the history of Islamic culture, is very influential on the progress of Islam, especially as learning is very important because it discusses the development of Islam and

the lives of previous Islamic figures who have traits and personalities that can be emulated by the younger generation. Learning the history of Islamic culture is part of learning Islamic religious education which is taught in madrasas, both at the madrasah ibtidaiyah, tsanawiyah, and aliah levels. This learning aims to increase students' faith and piety, provide provisions for life, and build students' awareness of the importance of Islamic religious teachings which are based on the Koran and Hadith. In this learning there are also good values and Islamic norms that were exemplified and carried out by the Prophet.(Makransky et al., 2019), in order to build and develop Islamic culture and civilization(Aminah et al, 2022). So that until now humans can study problems that existed in ancient times and can use them as guides and role models for people who have an influence on the development of Islam. We cannot deny that the development of Islam that we experience today is the result of Islamic thought. who are able to develop thoughts so that Islam can develop from time to time.

Discussing education according to what is found in the law on education, namely in the law of the Republic of Indonesia number 20 of 2003 regarding the national education system(Hadi, 2019), which states that education is carried out fairly and without violence by upholding human rights and being able to respect the diversity of nations, languages, customs and religions(Shyu, 2021). Education must also be carried out holistically with an open system that can relate to the environment, be it the family, the general public and the surrounding environment, and also be able to shape character and personality to achieve the desired goals.(Yunita et al., 2022). The aim of national education as stated in the 1945 constitution is to educate the life of the nation and develop humanity as a whole.(Rohana, 2018), namely a human being who has perfect faith and devotion to God Almighty, and has noble character traits that can be used as a guide and is able to develop abilities and knowledge(Aghera et al., 2018; Rohana, 2018). Here, the concept of learning according to law number 20 concerning the national education system is a process of interaction between students and educators and the learning resources taught in a learning environment.(Barredo Arrieta et al., 2020), To increase this broad knowledge, critical thinking is needed, which is thinking that has not been thought of by other people at all.

A person's critical thinking must be able to have high level thinking skills which is the ability to be able to manage, remember and memorize, restate and give examples of events that occur in the surrounding environment.(Huang & Zhao, 2021; Wright & Schultz, 2018). Critical thinking can be obtained with Order Thinking Skills (HOTS). This ability is very important in learning because it can support each student's abilities and be able to find solutions to problems in the surrounding environment and High Order Thinking Skills (HOTS) have an influence on the social environment so that they are able to assess and conclude every problem that occurs in the community.(Fu et al., 2020; Morgan et al., 2018; Nguyen et al., 2018). Here, a teacher has an obligation to educate the nation's children to become creative and innovative human beings(Boutin-Foster, 2022; Kerr et al., 2018; Yell et al., 2022). As contained in Article 3 of the Republic of Indonesia Law concerning the National Education System, namely the function of a teacher is to be able to improve abilities and shape the behavior and personality of the nation's children

who are dignified and able to develop students' talents, interests and competencies so that they become human beings who are useful for the tribe and nation as well as a religion that believes in and is devoted to the Almighty God, and has noble morals. This high-level thinking or Order Thinking Skills (HOTS) will be possessed if an individual has insight stored in strong memory and has new information, then combines and develops the information obtained so that it can produce goals or answers to problems.

High Order Thinking Skills (HOTS) here requires learning to be able to utilize information, ideas and existing sources and HOTS also teaches students to think critically so that they can improve their analytical, innovation and assessment skills. HOTS learning usually has the same characteristics as 21st century learning in the era of globalization or an era where we find a lot of various technologies and information where changes have occurred in various fields such as changes between countries, nations, cultures, customs and so on. So here a student must be able to think critically and think rationally and realistically, by reading more and developing the knowledge they have. The characteristics of a 21st century society are that it has the characteristics of a young generation that is capable of having broad, creative, skilled thinking and being able to make the right and quick decisions with mature thinking.(Mazurkiewicz, 2021).

Continuity of learning using the High Order Thinking Skills (HOTS) method can be improved by using a neuroscience system, where neuroscience is a field of learning that discusses the nervous system or brain.(Chen et al., 2021), as well as neuroscience also discusses awareness and sensitivity of the brain in terms of biology, memory, and the ability to memorize learning material(Spunt & Adolphs, 2019). So it can be interpreted that every command received by the brain will activate important nerves in the brain(Hramov et al., 2021), so that the application of this method in education can be proven by giving students the ability to optimize the nervous system and brain so that they can use it in various situations to solve problems and also discover new ideas and new thoughts(Aringer et al., 2019; Chevalier & Buckles, 2019; Tayebi-Khorami et al., 2019). This neuroscience is also related to cognitive psychology, namely being able to understand someone's thought patterns(Barnett et al., 2018), This can also be related to learning at school, including learning the history of Islamic culture, where the ability of the brain or nerves is very important to apply in every child's education so that children can easily understand the existing learning.

The importance of neuroscience in education is that it is able to make it easier for students to make decisions for every aspect of life and is able to organize and manage students' thinking patterns(Rae et al., 2022), so the task of neuroscience is to explain human behavior in every activity(Zenke et al., 2021). So it can be concluded that in fact the brain and human behavior are closely related and cannot be separated from each other, so that this neuroscience system plays a very important role and influences the development of children's education.(Sarancha et al., 2021).The aim of education, especially learning the history of Islamic culture using neuroscience (brain or nerve science) and HOTS methods, is to make it easier for children in the learning process, improve children's character and attitudes in responding to problems, and be able to act

wisely in responding to things so that they can differentiate which ones have a good and bad impact on oneself, as well as being able to solve existing problems with an open mind, for example problems faced by students in learning the history of Islamic culture in general, namely difficulty remembering things or problems in understanding the material. However, in fact, facing this problem can actually be overcome if you are able to think critically about the existing lessons so that you can be sure that students will be interested and enthusiastic in the ongoing learning process.

At the same time, the appropriate function of this neuroscience system is to provide direction in thinking so that an individual has the ability to manage thoughts and is able to use the brain.(Caspi & Moffitt, 2018; Gumusoglu & Stevens, 2019), so that it can produce a good personality and be able to differentiate between what is good and what is bad, so that this system can also make it easier for teachers to teach, moreover teachers are able to apply the neuroscience system in pursuing students which will have a good impact in the world of education(Bruns et al., 2019). However, in sharpening children's brains, teachers must be able to use the nervous system correctly and correctly so that it can be used in learning(Sondhi & Gupta, 2021, 2021). During the learning process, teachers can also combine various ways and methods in teaching, especially in learning history. The goal here is that teachers can find out how much skill and ability children have in remembering things and how quickly children grasp the learning given to them. This can result in students understanding the lesson more easily and being able to know how important the knowledge that the teacher has given them is(Moore & Díaz, 2019; Segal, 2021; Yuen et al., 2018). As contained in Law no. 20 of 2003 concerning the National Education System Article 40 Paragraph 1 states that an education worker has the right and obligation to have the opportunity to use educational media and facilities that can support the smooth implementation of learning. Therefore, this article explains how teachers have opportunities to improve the quality of learning so that it can run smoothly and effectively, comfortably, peacefully, meaningfully and enjoyable, so that interaction in learning is not just one-way dialogue, telling stories, questions and answers or just teacher explanations. on the material they teach.

The learning process has an important aspect in education to create a conducive atmosphere so it is not only teachers who must improve their brain knowledge but also the students themselves.(Blake et al., 2020; Roberts, 2019; Šašinka et al., 2018), to improve their skills in remembering, students need to practice and study hard, because if they want to have extraordinary abilities in remembering, they need big sacrifices to get it all, so here students need to understand, appreciate and practice the teachings that has been given. In developing and strengthening students' critical attitudes, this can be done using high-level thinking or HOTS(Ali et al., 2021; Basantes-Andrade et al., 2020; Ryder et al., 2019). Through HOTS, students will be stimulated to think critically and integrate knowledge and development in real life. Especially(Ribeiro et al., 2019; Ssenyonga et al., 2022), innovation and cognition for students by linking facts and ideas during the process of analyzing, evaluating and giving value to the ideas and facts found.

Based on the description above, the conclusions can be drawn Higher Order Thinking Skills (HOTS) in learning the history of Islamic culture based on neuroscience are very important in improving students' ability to learn. Therefore Researchers are very interested in discussing this problem further and researchers want to know the extent of the role of neuroscience as well Higher Order Thinking Skills (HOTS) in learning the history of Islamic culture (Kim et al., 2020). The aim of this research is to provide information regarding how important it is to apply HOTS and think critically and find out why it is important to apply knowledge about the brain, especially in schools and in Islamic cultural history lessons, and here researchers can provide information about the benefits of HOTS and neuroscience for students and teachers and anything that becomes an obstacle in applying knowledge about the brain or nerves (neuroscience). Some of the obstacles faced in studying brain or neurological science are how to assess the contents of an individual's brain or nerves (Fischer et al., 2018; Kuner & Kuner, 2021), because not everyone has the ability to apply this neuroscience, the same goes for HOTS or critical thinking here critical thinking can be used as a form of human character or a form of action that must be studied in depth, because to think critically an individual must have brain abilities extraordinary in solving problems.

Method

Researchers carry out research in quantitative form, this quantitative method is a process of finding results by using data in the form of numbers as a tool for analyzing information about what one wants to know about an issue or problem. (Guo et al., 2020; To et al., 2020; Zwanenburg et al., 2020) with the aim of knowing and analyzing the results of observations made regarding how important they are Higher Order Thinking Skills in learning the history of Islamic culture using a neuroscience system. This research was carried out at one of the schools in Padang Ganting sub-district which was carried out at the beginning of the middle of the odd semester 2022/2023, this time was chosen because many people believe that learning the history of Islamic culture in this school is less attractive to students due to the lack of ability to remember and memorize the learning given.

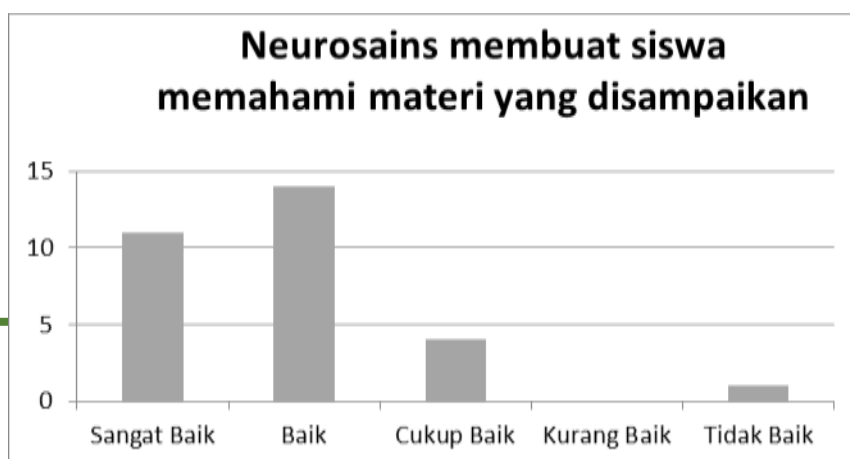
The source of this research comes from several teachers who teach at the school in question, including the results of a survey conducted using a questionnaire, and also comes from the results of an interview with one of the teachers who teaches the subject of history of Islamic culture at the target school where the interview was conducted in person. online, namely using existing social media, during the interview discussed how important it is, how much interest and enthusiasm students have in learning using neuroscience systems. Before filling out the questionnaire, the researcher had previously asked several questions with the help and guidance of the lecturer in the technological literacy course, where the questions asked were related to the discussion of this research which discusses High Order Thinking Skills or what can also be called high-level thinking skills using systems. neuroscience (science of the brain/nerves) in learning the history of Islamic culture.

The research results were obtained using questionnaire data, namely survey, which was carried out using a Google form which the researchers distributed to 30 people consisting of teachers, pupils and university students. Then, from these results, researchers will then analyze further using quantitative methods to find out how large the percentage of use of neuroscience in the world of education is. After the researcher analyzed the results obtained, the researcher then explained them thoroughly from the results of the questionnaire obtained, where in describing the results here the researcher included pictures and the number of people who had answered the questions asked, after the explanation the researcher also included conclusions from the results obtained. The purpose of this research is to find out how many people think about the importance of High Order Thinking Skills and neuroscience systems in education.

Results and Discussion

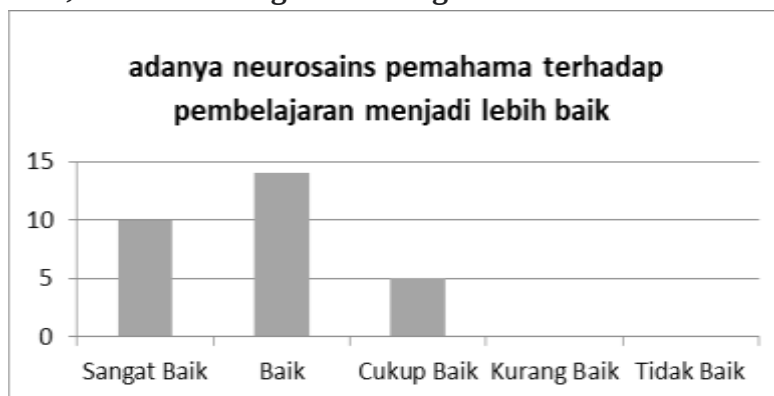
HighOrderThinking Skills and this neuroscience system have impacts and benefits on educational development, so that they can help students understand existing learning, be it general, special and religious education. Neuroscience systems can improve children's cognitive abilities and can help children solve existing problems, and here also High Order Thinking Skills can also improve students' abilities in developing children's thinking patterns. The benefits of studying neuroscience in education can be used to develop individual, family and community competencies, because by studying neuroscience an individual will have a good personality, so he can improve and develop the skills he has using an open mind and can also provide benefits in the world. education. So neuroscience is a science that provides many benefits across all disciplines. So it is very important to teach this knowledge to students to be able to improve critical and open thinking and make decisions quickly and precisely. Until now, it can be seen how important HOTS is in neuroscience-based learning in the world of education, where there is Critical thinking and leading thinking will broaden a child's insight so that the child will not have difficulty understanding the learning material, as well as for teaching staff or a teacher it will also be easier to explain the material and it will be easier to achieve effective and efficient learning. Therefore, the results of this research are related to how important learning is using HOTS which uses a neuroscience system.

Neuroscience makes students understand the material presented



From the results of the questionnaire from the Madrasah Tsanawiyah Negeri 1 Tanah Datar which was examined by researchers, it was seen that there were 30 students, 11 of them answered very well, so for this answer there were around 11 people think that this neuroscience is very good to use because it is able to make students easily understand the learning material being taught and know how to apply neuroscience in everyday life and is able to produce critical thinking and know the bottom of this neuroscience is able to make someone own and recognize their identity. , so that they are able to produce a good personality based on their thoughts. 14 people think that neuroscience is good to apply because it is able to make students understand the material presented. 4 people out of 30 people surveyed thought it was quite good to apply neuroscience in learning, this is because neuroscience is able to make students understand existing learning, even though only a small part applies it, not the whole, and not a single person thinks that neuroscience is just ordinary, and 1 People think that neuroscience is not well applied and cannot make learning easier because neuroscience has not been applied at all and the problem of neuroscience has not been thoroughly explained.

With neuroscience, understanding of learning becomes better



Several students and teachers who were surveyed answered that the presence of neuroscience in learning is able to improve understanding in learning, because they think that neuroscience is very useful in education, this is because looking at its function alone it can be seen how good it is with the presence of neuroscience in learning, where 15 people out of 30 people from the survey results said that there is neuroscience in understanding learning better and being able to improve students' skills, 10 people out of 30 people answered very well about the existence of neuroscience in learning and being able to apply it in schools and the environment and society because the brain and neurological sciences taught can make life and education easier. There are around 5 people out of 30 people who answered quite well that neuroscience or brain science is applied in learning because neuroscience has not been fully implemented in schools so the assessment of understanding of learning using neuroscience is not yet completely perfect. However, the assessment obtained for the answers given consider

neuroscience to be ordinary and not well applied and unable to make learning better, namely as many as 0 people or none, this proves that neuroscience is important and is able to apply and improve students' understanding of the material being taught.

Does High Order Thinking Skills (HOTS) or critical thinking open up insight into learning the history of Islamic culture?



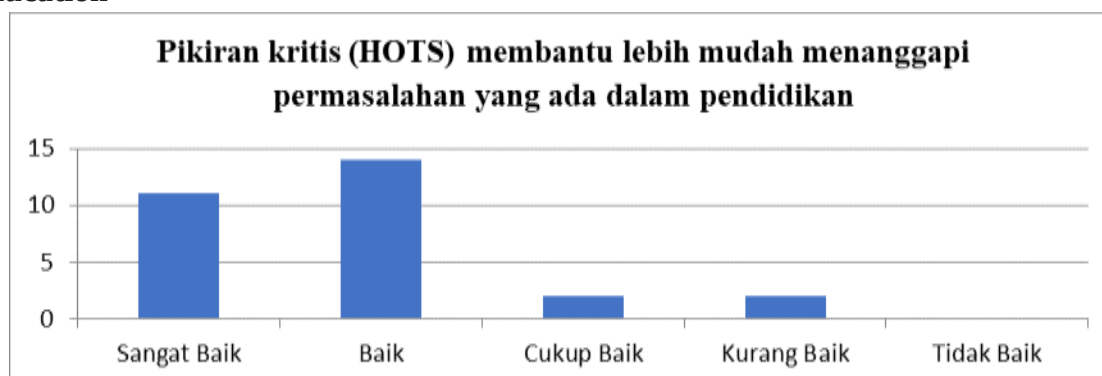
Judging from the diagram, it is clear that almost all of them think that the existence of high order thinking skills (HOTS) is able to open up insight in students of the history of Islamic culture, which of the 30 people surveyed found a satisfactory percentage, namely 13 people from the 30 people surveyed who answered. Bottom line, HOTS or high level thinking is very good and is able to open students' horizons in learning the history of Islamic culture at school, and 14 people out of 30 people who were surveyed answered well, that is, they answered that HOTS is able to open students' horizons in learning, here it can be seen and inconcludeIn essence, HOTS is able to open students' horizons in learning, including studying the history of Islamic culture. The results of other assessments also included 2 people who said it was quite good and 1 person who answered normal, this is because each person's abilities are definitely different, so the ability to obtain high-level thinking and produce critical thinking also produces low results because each People definitely have nothing in common and definitely have shortcomings. And for bad results, getting a result of 0 or nothing at all, this proves that HOTS is indeed able to open a person's insight even though it requires extraordinary skills and a passion for learning that must continue to be improved.

Is Neuroscience very good for students to study?



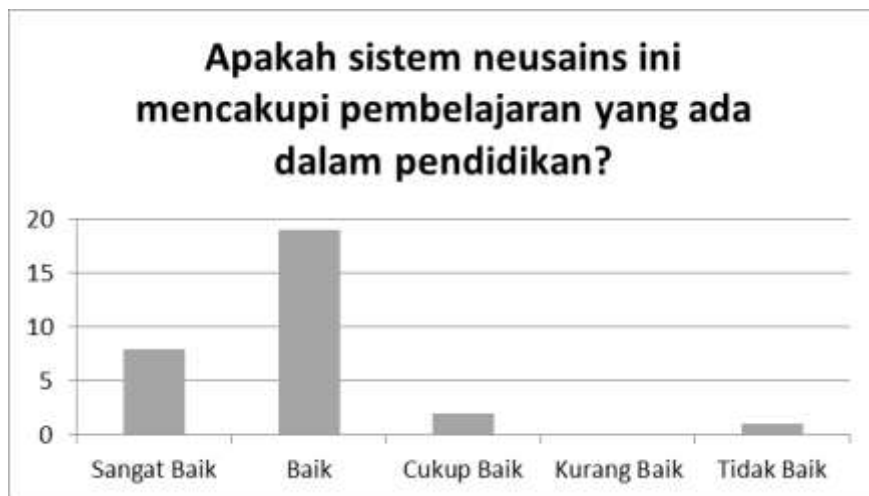
Here it can be seen how well and very well this neuroscience is applied and studied by students, because seen from the aim and function of this neuroscience it is very important and very well taught and studied by students, which has a function. controlling working memory and being able to describe events that occurred, from the questions asked, the results were that 13 people out of 30 people answered that neuroscience is very good for students to learn and 16 people out of 30 people answered that neuroscience is good for students to learn, which is Another goal and function of neuroscience is that it is able to make children learn according to the workings of their brain and nerves. Another result obtained by 1 person out of 30 people answered that it was not good because if it was studied by students who were still underage or not yet able to receive the learning material. which is difficult and can make children uncomfortable and even stressed. And for the answers that were quite good and not good, the survey results obtained from 0 people. This shows that no one answered that they were not good, because neuroscience does not harm children, in fact it is able to increase children's insight and knowledge.

Critical thinking (HOTS) helps to more easily respond to problems that exist in education



From the bar chart data above, the bottom results were that many people answered good and very good, of which 36.7% answered very well, this is because critical thinking is very helpful in dealing with and solving problems and with critical thinking people will find it easy to take action. decisions quickly and precisely. And those who answered well got the results of 15 people out of 30 people who were surveyed, this is because the minds of those who have considered their subordinates with critical thinking are able to analyze existing problems or questions from different points of view, not only looking from one direction but in every direction. their point of view is thorough. Likewise, the results were 2 people out of 30 people answered quite well and 2 people answered not very well. So, of the 30 people surveyed, there were 2 people who answered less well. This is seen from a different point of view. This critical thinking is important for education, but not every education and level of education, this thinking is really needed by students, such as education for early school children. , and the results obtained were no one answered unfavorably.

Does this science system cover existing learning in education?



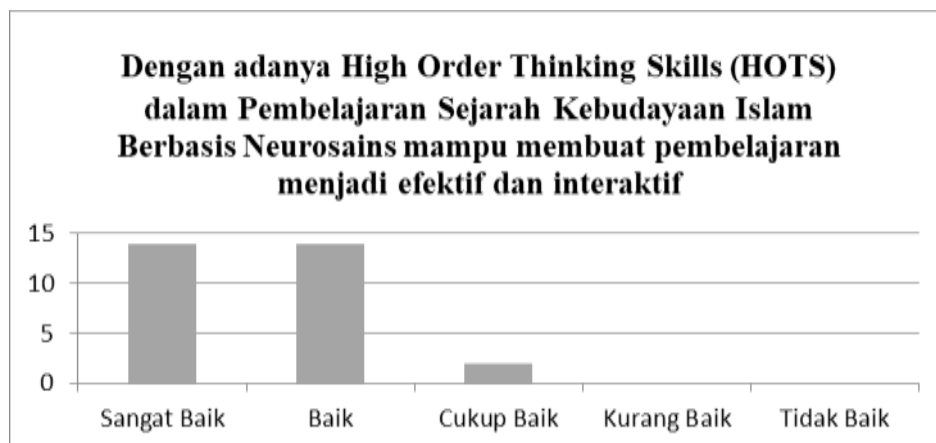
From the diagram above, survey results can be obtained which answered very well, where 8 people out of 30 people answered that neuroscience really covers learning in education, 19 people answered that neuroscience has covered various learning in the world of education because from this neuroscience or This brain and nerve science includes learning problems because if it is not accompanied by brain science then learning will be difficult to learn and can achieve effective and efficient learning and will affect students' ability to understand existing learning. Another result obtained is 2 people out of 30 people answered quite well, this is seen from learning which focuses on learning a person's beliefs or morals because brain science is not too important in this learning because the most important thing is good attitudes and behavior in learning, and the last one who answered 1 out of 30 people answered that it was not good, and no one answered that it was not good, this was because at school or where they studied this neuroscience system was still applied to certain learning areas or only one or two subjects used this neuroscience system.

Neuroscience becomes a supportive learning system



From the diagram above, it can be seen that almost all of them agree that neuroscience can be a supporting system, where the results obtained here are that 20 people out of 30 people on the surf answered well, where more than half of the survey results answered that neuroscience is able to support learning, This is because by using a neuroscience system, all learning will be easily understood by students and teachers will also have no difficulty in understanding how children with different bodies think. 8 people answered very well because neuroscience really supports the learning process, both general and religious learning, including Islamic cultural history subjects which require a strong memory. Another Surfey result was that 2 people answered quite well or quite supportive of neuroscience being a learning system that supports reasons because it depends on how teachers or educational staff use this neuroscience system. And the results obtained were that no one answered that they did not support or did not support the neuroscience system in learning, this means that almost all of them answered that neuroscience can support learning.

With the presence of High Order Thinking Skills (HOTS) in learning the history of Islamic culture based on neuroscience, it is able to make learning effective and interactive.



Based on the results of the survey above, there are several opinions regarding the existence of High order thinking in learning the history of Islamic culture based on neuroscience which is able to make learning effective and interactive, of which 14 people from the 30 people surveyed answered very well, this is because of the existence of HOTS. can make it easy for children to understand learning, especially by using a neuroscience system where HOTS or high level thinking abilities can be applied with a brain science system which is very influential in the world of education, 14 people out of 30 answered well because the effectiveness of learning is influenced by what is the way of thinking or mindset of teachers and students themselves, and there are 2 people who answered quite well because the use of HOTS with the neuroscience system is good and increases students' understanding, but there are several problems in the application and how to study HOTS and neuroscience for teachers or students who have not studied this learning and system at all for the beginning of learning, and of the 30 people in the survey,

no one answered that it was not good or not good. So it can be concluded that the existence of High Order Thinking Skills (HOTS) in learning the history of Islamic culture based on neuroscience is able to make learning effective and interactive.

Neuroscience is a system that supports learning the history of Islamic culture



Based on the results of the diagram above, it is known that neuroscience can be a system that supports learning the history of Islamic culture, where of the 30 people surveyed, 20 people answered well, this is because with this neuroscience, educators will easily understand children's attitudes, children's abilities, and Children's skills can be developed, so with neuroscience we will know how a person thinks. And 7 people out of 30 answered this very well because neuroscience is a system that studies humans as a whole or a comprehensive study of the capabilities of the human brain so that it can be confirmed that neuroscience can be a system that supports any subject, including the history of Islamic culture, which is where this study is conducted. related to brain abilities that require the ability to remember and memorize lessons. Another survey result was that the answers were quite good with the survey results of 2 people out of 30 people considering neuroscience to be quite supportive in learning the history of Islamic culture due to their lack of knowledge or lack of expertise regarding the neuroscience system taught in learning the history of Islamic culture. And no one answered that it was not good, this proves that neuroscience is able to become a system that supports learning, including learning the history of Islamic culture.

Is learning the history of Islamic culture very well connected to the neuroscience system?



Based on the results of the respondents in the diagram above, we can see that the bottom line of the 30 people surveyed gave a view regarding the learning of the history of

Islamic culture, which is very well connected to the neuroscience system, with many choosing that neuroscience is best connected to learning, of which the survey results found that there were 18 people answered well, this is because looking at the name of the subject alone it can be seen that it is very related, which is that studying the history of Islamic culture really requires brain knowledge to understand the material given. 8 people out of 30 who answered very well to the answer whether learning the history of Islamic culture is very good is connected with the neuroscience system with many people choosing that neuroscience is basically connected with learning because neuroscience is the science of the brain and nerves which will be closely related to memorization, memory and students' ability to understand learning, including learning the history of Islamic culture, which requires the ability to remember, rephrase and memorize material which requires strong memory. Likewise with the others where there were 4 people out of 30 people who answered quite well, and for the answers not good or not good no one answered for this obsi, so this proves that the study of cultural history is indeed well connected to the neuroscience system which discusses brain and nervous system knowledge which is really needed in all learning, including history.

Conclusion

Over time, education in the world has seen many changes and advances in all aspects, including cognitive aspects, knowledge, such as High Order Thinking Skills (HOTS) and the neuroscience system, namely neuroscience-based learning, which is an ability that requires extraordinary abilities regarding how important it is. brain management to develop an individual's brain power, this does not only apply to students or teachers but is applicable and beneficial for every individual because it has extraordinary benefits and goals, namely to produce good and extraordinary personalities, namely by having high level thinking that produces a critical mindset so that it can make it easier to solve problems that occur in the environment, including in the school environment, namely in the teaching and learning process, which is very important to apply to create conducive and efficient learning. From the results of research conducted by researchers, it can be concluded that High Order Thinking Skills (HOTS) and neuroscience systems are very important in the world of education.

Suggestion

As the results of observations and surveys conducted by researchers regarding the problem of high order thinking skills (HOTS) in learning the history of Islamic culture with the underlying neuroscience system obtained very satisfactory answers to the high order thinking skills and neuroscience systems to be applied to students in learning so that they are able to creating learning that is lively, fun, and effective and able to develop the potential and interests of students, here the researchers hope that educators will be more patient and not give up in teaching high order thinking skills to the younger generation so that in the future they can apply the knowledge they have and This knowledge can also be useful for them because having an open and critical mindset will create a good personality

and can be useful for other people. And for every individual, don't get bored easily in everything. To get satisfactory results, it requires extraordinary sacrifices, including having high level thinking, which really requires patience and expertise in doing and teaching it.

THANK-YOU NOTE

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