







## Higher order thinking skills (HOTS): An analysis based on Surah Al-Hajj verse 46

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### Abstract

Higher Order Thinking Skills (HOTS) is the ability to apply knowledge, skills and values in reasoning and reflection. Islam associates knowledge with the process of thinking. Terms such as *tafakkur* and *ta'aqul* (thinking) are used to describe the thought process. The process of *tafakkur* and *ta'aqul* is accompanied by a tool used to think and comprehend, which is the *qalb* (heart). This is stated in surah al-Hajj, verse 46. This picture gives rise to two questions. Firstly, what is the scholar's view of the verse? Secondly, what is the relationship between HOTS and the function of *qalb* which is found in surah al-Hajj verse 46? This study has two main purposes. First, to analyze the scholars' views on verse 46 of Surah al-Hajj. Second, to formulate the relationship of *qalb* as found in Surah al-Hajj verse 46 with HOTS. This study aims to answer both these questions through content and textual analyses of various literature. For the first question, this study exhibits five main elements found in verse 46 of Surah al-Hajj. For the second question, this study concludes that the function of *qalb* can further strengthen the concept of HOTS.

**Keywords:** Higher Order Thinking Skills (HOTS); *Qalb*; thinking; analyzing; synthesizing; evaluating

## 1. Introduction

High Order Thinking Skills HOTS is a continuation of creative and critical thinking skills (CCTS) that focuses on the aspects of evaluating, analyzing, exploring and creating (Norasmahani et al., 2015). HOTS is holistic in nature and focuses on complex mental applications (Nur Aida & Mohd Aderi 2014) and is not resolved with routine applications (Rajendran 2008). HOTS is triggered when an individual uses thinking skills to face complex, new and challenging situations (Rajendran 2008; Halimah 2009; Yee et al., 2010).

Tomei (2005) explained that HOTS leads to the use of cognitive skills at a high level, namely the skills of analyzing, synthesizing, evaluating and being able to create new views and ideas. The Curriculum Development Division, Ministry of Education, Malaysia (2013) defines HOTS as:

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“... the ability to apply knowledge, skills and values in reasoning and reflection to solve problems, make decisions, innovate and be able to create something.”

The concept of HOTS became an important agenda in the field of education after the teaching objectives of Bloom Taxonomy (1956) were introduced (Musliha 2010). Bloom's Taxonomy (1956) and Revised Bloom's Taxonomy (2001) became the main framework of the Ministry of Education Malaysia's (MOE 2014) HOTS. The high-level cognitive level based on the Revised Bloom Taxonomy (2001) encompasses four cognitive domains namely applying, analyzing, evaluating and creating. These four cognitive domains require high-level thinking skills.

**Table 1.** Shows the level of thinking increased from the level of remembering, understanding, apply, analyze, evaluate to create (Curriculum Development, Ministry of Education Malaysia, 2013)

Level of Thinking	Explanation
<b>Create</b>	<ul style="list-style-type: none"> <li>• To produce ideas or product or creative and innovative methods</li> </ul>
<b>Evaluate</b>	<ul style="list-style-type: none"> <li>• To make judgment and decisions using knowledge, experience, skills and values as well as giving justification</li> </ul>
<b>Analyse</b>	<ul style="list-style-type: none"> <li>• To divide information into sub-sections to understand more deeply as well as the interrelationships between the relevant parts.</li> </ul>
<b>Apply</b>	<ul style="list-style-type: none"> <li>• To apply knowledge, skills and values in different situations in implementing something.</li> </ul>
<b>Understand</b>	<ul style="list-style-type: none"> <li>• To recall information and able to explain ideas and concepts.</li> </ul>
<b>Remember</b>	<ul style="list-style-type: none"> <li>• To recall information, facts or concepts.</li> </ul>

Islam also promotes the thinking process. Among the terms used in the Quran to describe the thinking process are *tafakkur*<sup>2</sup> (thinking), *ta'aqul*<sup>3</sup> (thinking), *tadabbur*<sup>4</sup> (pondering) and *tadhakkur*<sup>5</sup> (remembering) (Mohd Kamal Hassan, 2011). Tafakkur can even lead to solving future problems (Badi & Tajdin, 2005). There are several verses from the Qur'an that mention these terms. One of the verses is in surah al-Hajj verse 46. The verse describes the process of ta'aqul (thinking) lies with the qalb. Yusuf al-Qardawiy states the Qur'an mentions that the process of thinking (faculty of intellection) takes place in the qalb, besides using hearing and sight. The Qur'an does not mention the word intellect or brain even though the function of the intellect is to think and understand (Mohd Kamal Hassan, 2011). Therefore, this paper examines the views of scholars on verse 46 of surah al-Hajj and discusses it in the context of HOTS.

## 2. Previous Research

Based on previous research, from an Islamic perspective, thinking skills can be divided into two categories. Studies in the first category, such as the works of Mohd Nasir Ayub, Muhammad Azizan Sabjan, and Mohd Marbawi Taha (2014), examined terms from the Quran that relates to thinking. Also, Norfadalah Nordin and Ahmad Tijani Surajudeen (2015) used the same terms as the main

<sup>2</sup> *Tafakkur* is the process of thinking to build new knowledge.

<sup>3</sup> *Ta'aqul* is the process of thinking and understanding a knowledge rationally.

<sup>4</sup> *Tadabbur* is the process of understanding deeply and thoroughly.

<sup>5</sup> *Tadhakkur* is the process of bringing existing knowledge to the heart (recall)

concept in thinking. The terms are *tadabbur* (deep thinking), *tafqiḥ* (understanding), *tafakkur* (thinking), *ta'qil* (synthesizing), and *tadzakkur* (recalling). The concepts of these terms are discussed and associated with faith and morality, which are Islamic principles that are able to bring inner wellbeing to the human race. The study of Norfadela Nordin and Ahmad Tijani Surajudeen (2015) developed a theoretical model of thinking that is suitable to be developed and integrated with the concept of al-Qalb. This is because there is a relationship between the elements of thinking and the function of al-Qalb. Mohammad Manzoor Malik (2017) added to the conceptual discussion of these terms and their impact on moral education. This is a reflection of thinking associated with al-Qalb, which is evidenced through its morale.

Nursafra Mohd Zhaffar, Mohd Isa Hamzah, and Khadijah Abdul Razak (2017) also stressed the importance of critical thinking in Islam by emphasizing faith and morality. This study found that critical and creative thinking is part of HOTS and its function is to shape various skills, attitudes, and values. Thinking skill through the *tadzakkur* (recalling) approach has been described by Tengku Nor Husna Tengku Jamil, Hasanah Abd Khafidz, and Khazri Osman (2019) as high-order thinking that uses the drilling method. This approach proposes performing worship activities consistently so that it has a positive effect on the mind. Therefore, the cycle of activities, when applied consistently, will result in appreciation and become routine for students as thinkers. This study found that the *tadzakkur* approach is one of the relevant approaches to improve thinking skills in Teaching and Learning (TnL) activities.

Meanwhile, the second category of research found studies that examine the concept of thinking which has been developed by Islamic scholars. The concept of thinking is used as a basis for building a model of thinking skills. Mohd Syaubari Othman and Ahmad Yunus Kassim (2016) presented three main frameworks in teaching practices based on the elements of HOTS according to Imam al-Ghazali. The three frameworks are the understanding of the concept of knowledge, the teaching process, and values in the teaching process. Imam al-Ghazali's thoughts on teaching methods, when combined with the theory of HOTS, can create a more open learning phenomenon. Further, Mohd Syaubari Othman, Ahmad Amir Khan Shah Ahmad @ Mohammed, and Ahmad Yunus Kassim (2017) stressed that thinking skills based on the concept of *Malakah*<sup>6</sup> (intellectual ability) are suitable to be applied with the theory of HOTS in learning activities, especially for Islamic Education subjects. This is because the process of thinking skills in Islamic learning should follow Islamic philosophy. This study revealed the four basic concepts of *Malakah* by Ibn Khaldun, namely '*aql tamyizi* (making distinction), '*aql tajribi* (experience), '*aql nazori* (speculative), and *insaniyah* (intellectual al-Qalb). This combination of the *Malakah* concept can strengthen the learning method of HOTS because the philosophy of Islamic education emphasizes not only the aspect of understanding but also the aspects of practice and spirituality.

### 3. Methodology

This study uses data that can be accessed, obtained and analyzed through computers or from library materials without going through empirical experiments (Sapsford & Jupp, 2006). Among the materials referred include the holy scriptures, books, journals and researches. The books of turath related to tafsir are used to analyze the scholars' views on the selected propositions. To ensure that the data obtained are accurate, the researcher performed the following three approaches. First, the data are taken from the original scriptures. The books are in both hardcopy and electronic versions. The books

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<sup>6</sup> The *Malakah* concept means the talent to use thinking skills, such as combining the skills in different situations, thus, improving the level of thinking.

in electronic version in PDF format are accepted as authoritative references and guaranteed validity like the original book. This is acknowledged by the Department of Al-Qur'an and Al-Hadith (AQSA) Lajnah Academy of Islamic Studies, University of Malaya.

Second, the data are taken from various sources. The data are similar to each other. The existence of similarities amongst the data from various sources can provide validity and accuracy to the data collected.

Third, the researcher conducts personal communication with the authoritative group to obtain an accurate understanding of the data that is poorly understood. Personal communications include emails, personal interviews and telephone conversations (American Psychological Association, 2010).

Content analysis is performed to analyse the data obtained for this study. The content analysis approach is used to systematically examine and explain the meaning and literal content of the documents under study (Miles & Huberman, 1994). While the text analysis approach is used to examine and explain the interpretation systematically, that is the meaning or content implied in the documents studied.

To achieve the first objective, the content analysis method is performed by examining the tafsir of the books of turath to identify the elements related to the selected daleel. Then, the textual analysis method is carried out on the turath and contemporary works to achieve the second objective of this study. The second objective which concludes the suitability of the elements found in the first objective is discussed in the context of HOTS.

#### 4. Results and Discussions

One of the verses in the Qur'an that mentions thinking is verse 46 of surah al-Hajj. This verse is selected because it states that the process of thinking takes place in the qalb (heart).

The *daleel* is as follows:

*“So, have they not travelled through the earth and have hearts by which to reason and ears by which to hear? For indeed, it is not eyes that are blinded, but blinded are the hearts which are within the breasts.”* (al-Hajj, 22:46)

According to Muhammad al-Tahir 'Asyur (2000), based on this verse, Allah SWT questions human behaviours, notably those who have walked on the earth and have watched the effects left by their forefathers but have not taken any lessons from what they have witnessed. These group of people do not learn from what they have seen because they have not used their heart to think about the ill-effects. They were supposed to walk with their heart and ears so that they could think and take heed of what they have encountered.

Muhammad al-Tahir 'Asyur (2000) also points out three attributes of traveling that could benefit us. The first is to think with your heart. The second is to listen, while the third is to observe and carry out research. Traveling teaches us to learn about the success and failures of a particular society. He also explains that *qulub* (the heart) is a division of the mind and *qulub* has its own cognitive functions. This is partly because the heart is the organ that pumps out blood throughout human body and it is the heart that gives life to human body. The heart also gives life to the most important organ to human, that is the brain.

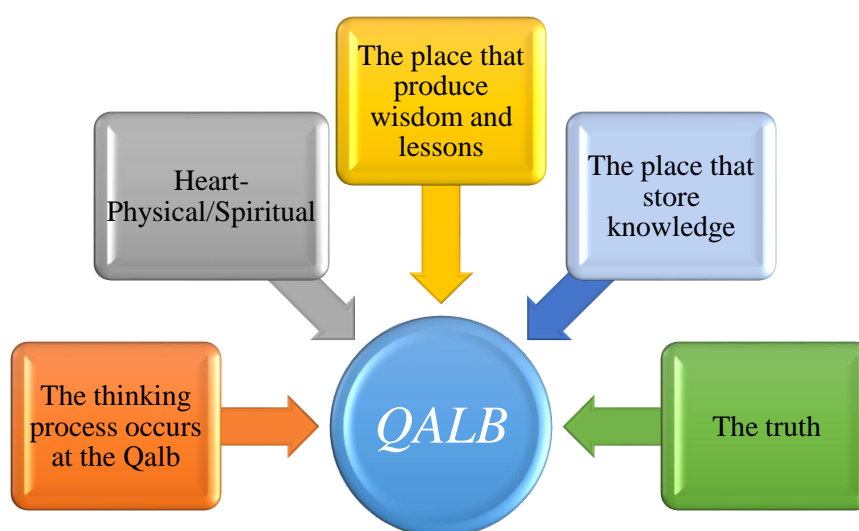
The nature of the heart is *ya'qilun* (thinking) and the heart plays the function of the brain, irrespective of the scientific view that thinking is mostly done by the brain. The linguists, however, are of the opinion that the heart too have similar functions like the brain, specifically, in its ability to think (Muhammad al-Tahir 'Asyur, 2000).

Syihabuddin Muhammad al-Alusi (n.d.) also accepts that the heart has a place for knowledge. Syihabuddin Muhammad al-Alusi asserts that both the brain and the heart share the same function, which is the locus for knowledge. He argues that although a person may experience some damage to his head, which affects the person's thinking faculty, he could still think with the mind that he has in his heart. This indicates that the heart could also store knowledge<sup>7</sup>.

Muhammad bin Juzi (1995) agrees that *qulub ya'qilun* (thinking heart) is similar to the notion contained in the *daleel* which underlines that the mind is where the heart is. In other words, one of the functions of the heart is to think. This idea is contrary to the philosophers' insistence that the place of the mind is in the brain. Muhammad bin Juzi further elaborates that the following verse clarifies that it is not the eyes that are blind, but the heart in one's chest. The heart that cannot see refers to the heart that cannot think.

Nasr bin Ibrahim al-Samarqandi (1993) stresses that the heart allows humans to ponder, examine, and to take an object lesson from what he has seen. Humans must think with their hearts. Nasr bin Ibrahim al-Samarqandi emphasizes that thinking process takes place in the heart. This view is echoed by Abdul Rahman bin Muhammad al-Thaa'labi (1997) who agrees that the mind is located in the heart. He also feels that since the brain is connected to the heart, the mind could also be damaged when a person's brain is damaged.

The same argument is supported by Fakhruddin al-Razi's (1981) answer when he was asked whether the verse is referring to *al-aql* as knowledge and the place for the knowledge is the heart. Fakhruddin al-Razi responded that the verse indeed refers to knowledge and the heart is the channel that processes thinking, particularly thinking about knowledge. Therefore, it is compulsory for humans to make the heart as the place for thinking. Fakhruddin al-Razi also highlights that a particular human race might insist that it is the brain that stores the place for thinking, but Allah SWT has made it clear that the locus for thinking is the heart. Figure 1 shows the five elements that are related to *qalb* based on verse 46 of Surah al-Hajj



**Figure 1.** The five elements that are related to *qalb* based on verse 46 of Surah al-Hajj

<sup>7</sup> The understanding of the al-Alusi interpretation is also obtained from Syed Sultan Bee bt. Packeer Mohamed, through the researcher's personal communication with her on 28 June 2016. She is a senior lecturer at the School of Language, Civilisation and Philosophy, Universiti Utara Malaysia.

Base on this discussion, it can be concluded that higher thinking skills can be achieved through *qalb*. Scholars divide *qalb* into two parts. The physical *qalb* and the spiritual *qalb* (al-Ghazali, 1996 & Seker, 2012)

In fact, there is a hadith quoting such matters. The hadith stated:

Meaning: “*Know, indeed in the body there is a "lump of flesh", if it is good then the body will be good, and conversely if it is bad then the body will be bad on the whole, know that the lump of flesh is "al-Qalb".* (Hadith narrated by al-Bukhari).

From the hadith, it can be seen that there is an organ that exists in physical form and can be related to matters that are intangible (spiritual), and the effect is something very subjective, which is good and bad. The organ is the *qalb* or heart. In determining whether something is good or bad, we need knowledge. Knowledge is created through the process of thinking. This matter is further strengthened with the discovery of heart functions. The following section discusses three functions of the heart which relate to the thinking process.

#### *4.1 Relationship between the Heart and Brain*

It is common knowledge that the function of the heart is to pump blood from the heart organ to the rest of the body, including the brain. The brain will produce waves. Waves move up and down, swinging to the right and left and so on (Zamzuri Idris, 2018). There are various studies showing the relationship between the heart and brain. The brain will receive positive or negative waves, depending on cardiovascular health. Cardiovascular health is closely related to the health of our heart and blood vessels (Levine, G. N., 2019). The same thing was found by Lüscher, T. F. (2019) and Roger, V. L. (2017) who discovered that there are changes in a person's cognitive domain when there are problems with cardiovascular health. Among the factors that pose a risk to cardiovascular health are hypertension, obesity, high cholesterol and diabetes. These conditions put pressure on the heart and brain. The pressure received by the brain affects the reduction in a person's cognitive domain.

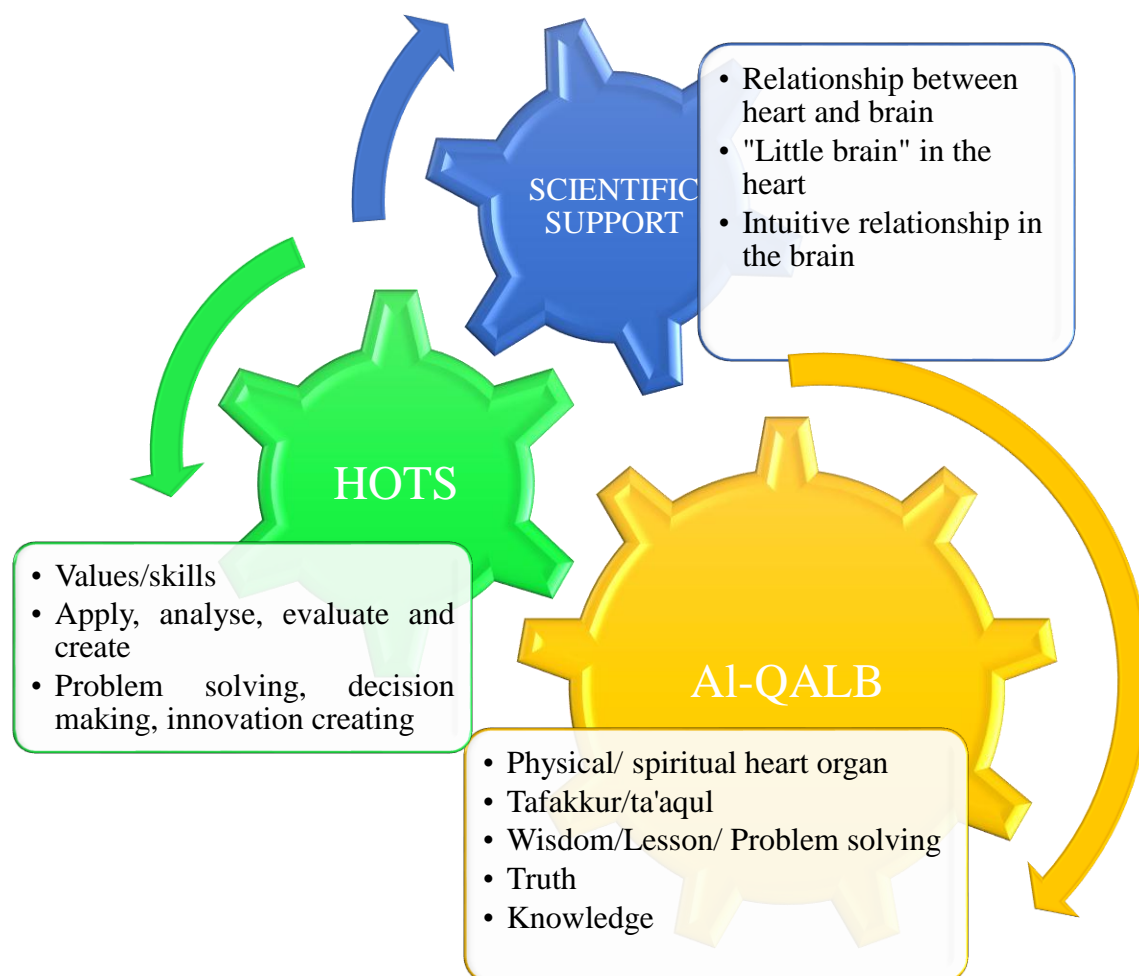
#### *4.2 “Little Brain” in the Heart*

Scientists have discovered that there is a "little brain" in a person's heart organ. This "little brain" refers to the memory cells found in the heart organ. The heart organ stores memory cells that are connected to brain memory cells. A type of cell found in the human heart, known as ganglia cells, have a stronger memory than the brain cells. These cells store more permanent information than the brain. This network of cells emits electrical waves that are distributed through the bloodstream (Armor, J. A., 2008; Janes, R. D. et al., 1986). Therefore, ganglia cells coming out of the heart affect the brain.

#### *4.3 Intuitive Relationship in the Brain*

Intuition is an instinctive awareness in the heart without thinking. The findings prove that there is an intuitive connection in the brain. The brain receives and processes intuitive information. Intuitive information data from the heart is transmitted to the brain (McCraty, R., Atkinson, M., & Bradley, R. T, 2004). There are even findings that show intuition affects the decision-making process. Like a study done on 50 nurses through an interview session. Findings found that they also use intuitive experience, besides knowledge in the clinical field, in their decision making (Rew, L. 1988).

Based on this discussion, there is a relationship between *qalb*/heart with thinking, analyzing and decision making, and this has been scientifically proven. Below is the connection between *qalb* and HOTS.



**Figure 2.** Describes the relationship between the Qalb and HOTS with scientific evidence

## 5. Conclusion

Based on this discussion, four things can be concluded. First, the HOTS system embraces the element of value or is referred to as affective. Second, the Qalb has two elements - physical and spiritual, this is in conjunction with the concept of HOTS which meets the elements of cognitive and value. Third, there is various scientific evidence that illustrates the relationship between physical and emotional/spiritual elements with cognitive. Fourth, a new effort is introduced to empower HOTS by placing the value/affective element on HOTS system application procedures.

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