



# What Is Thought: Take a Look at the Holy Quran and the Principles of Neuroscience

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## Abstract

**Background:** Human beings firmly obtain a better understanding of the creator, its aims and destination, natural phenomena as well as the surrounding concepts with the help of thoughts. Invitation towards contemplation is one of the principles of Holy Quran's teachings. Thought is one of the best activities of the human being's brain from the neuroscience point of view, which occurs in specific parts of the cerebral cortex. These areas consist of parts of the cerebral cortex, which either does not exist in other creatures or is not highly developed.

**Objectives:** The purpose of this study was to investigate the importance of thought from the Holy Quran's point of view and the Foundations of Neuroscience.

**Methods:** This research was carried out during year 2015 in the city of Tehran (the capital city of Iran). In this qualitative study, data were collected based on the Holy Quran and the interpretation of authentic books of the Quran and matching interpretation of these verses with neuroscience articles and books in the field of thought.

**Results:** Careful consideration of the data led to the identification of 18 verses of the Holy Quran that pointed directly to thinking, which were consistent with accepted principles in neuroscience.

**Conclusions:** Scientific secrets of the Holy Quran can be easily revealed by making a connection between a medical sciences, basic sciences, and Quranic sciences. There is hope of greater connection between the community of researchers in different fields with Quranic scientists, which might lead to the discovery of the secrets of this scripture and deep realization of the mystery of permanence.

**Keywords:** Central Nerves System, Holy Quran, Prefrontal Cortex, Sense Training, Thought

## 1. Background

Thought, according to the Oxford dictionary means meditation, contemplation as well as observation (1). Thought is the act of organizing and reorganizing of previous learning in order to utilize it in the current situation. Thought is an internal and undercover process, which leads to a cognitive zone, going to amend the previous cognitive system of a thinking person. Basically, the action of thought, in scientists' points of view is ordering information and building a basis in order to discover something new or find relationships between different phenomena (2, 3). Stream of thought does not follow any inside or outside instruction. Thought conducts become more mature as the body senses grow and the body matures, eventually

making a clear distinction between human beings and animals. From the point of view of neuroscience, thought is an activity of the brain. It occurs when humans encounter problems and intend to solve them. At this moment, endeavors start solving problem, the activity of the brain that we call thought. Brain activity for solving problems crosses several stages. It begins by clear definition of the problem, continues by finding solutions for the problem, and finally it ends by applying the best solution and emerging with the final answer (4, 5).

The frontal lobe is the most developed part of the brain, especially for human beings. The behind part of the frontal brain is specialized for dynamic orders; any disorder on that part might lead to the failure of an organ. The front part is the center of consciousness, logic, thought and par-

tially memory (6, 7). The connection area of prefrontal is necessary for the thinking process. This is probably because of the pre frontal's ability that makes dynamic activities scheduling possible. It seems that this part is able to process both dynamic and non-dynamic information from various parts of the brain and hence it makes both sorts of thoughts executable. In fact, the connection area of pre frontal is usually described as an important section for thoughts' upgrading. It is said that it can save short durations of time. This part of the memory compounds new thoughts at the entering moment to mind (8, 9). Desolation of this part of the mind from 2 different points leads to neglect of moral principles and the patient's decision becomes emotional (10-12).

According to the current study, very few studies have been conducted to evaluate the Quran and science. Data analysis showed that the US State ranks first in terms of scientific output in the field of Quranic sciences. In other words, 61 (90.2%) scientific publications in the field of Quran have been done by US researchers. UK researchers have produced 24 papers (equivalent to 22.8%) and are thus in the second place. These two countries have produced 29% of scientific papers indexed in the ISI database in the field of Quran. The Islamic Republic of Iran produced 15 papers (14.5%) and is in third place and France, Turkey, Malaysia, Canada, Saudi Arabia, South Korea, and Germany are respectively ranked next (13).

In the past, several studies have investigated the effect of listening to the Quran on performance and mental activity (14-17). Also, a very limited number of other studies have examined the medical issues raised in the Quran, including medical plant (18), embryonic development in humans (19), heart and cardiovascular system (20), and treatment of various diseases (21-23).

However, no studies have been done on behavioral and cognitive functions, specially thinking, in the Quran. Thought is a process in which a fresh mental reflection is created by transforming information, interaction between various features of the brain, judgment, argument, problem solving, and abstraction of information (2). Thought is the application of mental ability for revealing unknowns with the help of construing given information.

The Quran verses, which have pointed to thought and sciences cannot be interpreted in the same way. In some verses thought means taking advice or thinking over creation and it suggests finding out relations between different phenomena, using eyes and ears and other senses (24).

Besides, there are plenty of narratives, which have made great emphasis on thought in creatures and signs of creations; it is also known that the best way of understanding God is thinking about signs of creation as well as creation itself. In some verses, an hour's thought has

been declared better than seventy years of worship. It has been narrated from Imam Sadegh (peace be upon him), that thought and contemplation is a mirror of goodness, cover of evil, lights of heart, reason of fine attitude and being tolerant. Human beings realize what is good for their hereafter and the end of their earthy life through thoughts. There is no better way of worshiping God than through thoughts. Another narrative by Prophet Mohammad states that one hour of thinking is more credible than an entire year of worshiping God and whoever gets to that level is given unification and cognition by God.

## 2. Objectives

Regarding the fact that the Quran is the guidance book for human beings, which leads them to the peak of perfection, writers try to investigate the importance of correct thought from the Quran's point of view, correspondingly, analytically, and based on Quran's verses explanation according to neuroscience. Thus, the subject of thought is intertwined between the Quran and neuroscience. Therefore, writers try to give a clear and obvious idea on thought of the readers.

## 3. Methods

This study investigated the Holy Quran and the authentic interpretation (Tafsir) of Quranic books and also consulted with great masters of interpretation of the Quran. Unstructured interviews (non-directive interview) were used, in which questions were not prearranged. The unstructured interview form, included questions that were pre-designed and targeted on specific issues.

This qualitative study was carried out during year 2015, in the city of Tehran (the capital city of Iran). In this study, a software was used to interpret the Quran and Search the word thinking, to select Quran verses, which have pointed to thoughts. The authors tried to investigate the importance of correct thought from the Quran's point of view, correspondingly, analytically, and based on Quran's verses and their accordance with neuroscience. Thus, the subject of thought was intertwined between the Quran and neuroscience. Therefore, the authors tried to give a clear and obvious idea on thought to the readers.

Also, face-to-face interviews with 6 participants (teachers and researchers from the Neuroscience masters and Professors interpretation of the Quran) were arranged that were 60 to 120 minutes in duration for each participant. Thinking from the perspective of a neuroscientist and commentators of the Quran was investigated. In various meetings with scholars of the Quran, the Quran emphasized the importance of thinking. The word "thinking"

was repeated 18 times in the Quran. The importance of thinking in the Quran applauded authors to study thought from neuroscience point of view. Regarding the scientific interviews (with different religious scholars and neuroscientists), thinking was evaluated from the perspective of different religious thinkers. However, to fully understand these important words, a broader investigation is required.

## 4. Results

### 4.1. In 18th Verse of Holy Quran Pointed Directly to Thinking

The Holy Quran provides thought definition in different expressions; sometimes, immediately after verses in the Holy Quran, God says: “for the group of people who think”, or in some cases says: “you may think”, and “why do not you think?”. All these explanations express the necessity of conducting contemplation and this compulsion shows the possibility of recognition. The aim of the holy Quran was an invitation towards thought. Do not they think about the holy Quran or their hearts have been locked (24). In 18th Verse of holy Quran pointed directly to thinking (Table 1).

### 4.2. Stages of Thinking from the Perspective of Holy Quran and Neuroscience

#### 4.2.1. The First Phase of Thought is Transforming Sense Into Imaginations

In this grade, senses should be transformed to charts, descriptions, and diagrams. According to interpretations, which are coordinated to previous as well as fresh observations, one will add some fresh senses. Human beings save these fresh senses. For instance, imagine a person, who has memorized some parts of a book. Then, if he is asked to transform all the information into an interesting and understandable chart, he will start thinking and using his imagination in order to figure out a perfect description over his saved senses (25).

“And with it He grows for you corn, and the olive and the date palm and the grape and all kinds of fruits. Surely in that is a sign for a people who reflect” (Bee, 11) (24)

“Then feed on every kind of fruit, and follow the trodden paths of your lord.’ From its belly comes a drink with different colors which provides healing for mankind. Indeed, in this there is a sign for people who give thought” (Bee, 69)

“This present life is like the water we send down from the sky. The plants of the earth mix with it and from it mankind and cattle eat; then when the earth has become lush and adorned, its inhabitants think they have power over it, our command comes upon it by night or day, and

we cause it to be stubble, just as though it had not flourished the day before. In this way we distinguish our verses for those who reflect” (Jonah, 24) (24).

In the above verses and those similar to them, human beings are invited to see, listen and think in their surrounding areas by God. This means we are asked to realize the greatness of the creation and its creator by noticing the simplest present phenomena.

Most of the input senses to a human brain are from watching and listening according to biological points of view and an interesting point is that these 2 senses are more than others emphasized. The Holy Quran asks human beings to think via two different processes, 1) listening attentively and 2) watching critically.

“Deaf, dumb, and blind, they: will never return (to the right path)” (The Heifer, 18)

Watching critically: since ocular and sensitive data could percept for all groups of ages easier than others, there is remarkable invitation towards greater use of senses in order to comprehend different phenomena in better ways.

“Do they never reflect on the camels and how were they created, and on the sky, how it is raised aloft, and on the mountains, how they are firmly set up, and on the earth, how it is spread out?” (The Overwhelming Event, verses: 17 to 20)

“He created seven heavens one above the other in layer. You will not find any flaw in the creation of the gracious one. Then look once again: can you see any flaw?” (The Kingdom, verses: 3 and 4)

“After we had destroyed the earlier generation, we gave Moses the book to give men insight, and as guidance and a blessing for people, so that they might take heed” (The Story, 43). Thus, training and improving listening and watching are emphasized both by the Quran and the perspective of neuroscience. It is listed among the main entries of receiving sense signals.

Listening critically: “Who listen to what is said and follow what is best in it. These are the ones God has guided; these are the people endowed with understanding” (The Crowds, 18). “They will say, ‘If we had listened or understood, we should not now be among the inmates of hell” (The Kingdom, 10)

According to the 9th verse of prostration, creation of the auditory sense takes place in the very beginning followed by vision and other senses. The brain gets its special shape at the end/climax. This fact exactly corresponds with neurotic genesis in embryology studies. The Quran states, “He gave you hearing and sights”; in this verse the word hearing is single but sights are in plural. What is the reason for this? This is due to the fact the Quran has always mentioned hearing in a singular form, while vision has al-

**Table 1.** The Verses of the Quran That Directly Refer to Thought

Chapter and Verse Numbers	Verses
<b>The Heifer (al-Baqarah); 219</b>	"They ask you about intoxicants and gambling. Say, "There is gross sin in them, and some benefits for people, but their sinfulness outweighs their benefit." And they ask you about what they should give: say, "The surplus." Thus God explains the revelations to you, so that you may think."
<b>The Heifer (al-Baqarah); 266</b>	"Would anyone of you like to have a garden of palms and vines, under which rivers flow with all kinds of fruit in it for him, and old age has stricken him, and he has weak children then a tornado with fire batters it, and it burns down? Thus God makes clear the signs for you, so that you may reflect."
<b>Livestock (Al-Anam); 50</b>	"Say, "I do not say to you that I possess the treasures of God, nor do I know the future, nor do I say to you that I am an angel. I only follow what is inspired to me." Say, "Are the blind and the seeing alike? Do you not think?"
<b>family of Imran (Ali Imran); 191</b>	"Those who remember God while standing, and sitting, and on their sides; and they reflect upon the creation of the heavens and the earth: "Our Lord, You did not create this in vain, glory to You, so protect us from the punishment of the Fire."
<b>The Elevations (Al-A raf); 176</b>	"Had We willed, We could have elevated him through them; but he clung to the ground, and followed his desires. His metaphor is that of a dog: if you chase it, it pants; and if you leave it alone, it pants. Such is the metaphor of the people who deny Our signs. So tell the tale, so that they may ponder."
<b>The Elevations (Al-A raf); 176</b>	"Do they not think? There is no madness in their friend. He is but a plain warner."
<b>Jonah (Yunus); 24</b>	"The likeness of the present life is this: water that We send down from the sky is absorbed by the plants of the earth, from which the people and the animals eat. Until, when the earth puts on its fine appearance, and is beautified, and its inhabitants think that they have mastered it, Our command descends upon it by night or by day, and We turn it into stubble, as if it had not flourished the day before. We thus clarify the revelations for people who reflect."
<b>thunder (Ar-Rad); 3</b>	"And it is He who spread the earth, and placed in it mountains and rivers. And He placed in it two kinds of every fruit. He causes the night to overlap the day. In that are signs for people who reflect."
<b>The Bee (an-Nahl); 11</b>	"And He regulated for you the night and the day; and the sun, and the moon, and the stars are disposed by His command. Surely in that are signs for people who ponder."
<b>The Bee (an-Nahl); 44</b>	"With the clarifications and the scriptures. And We revealed to you the Reminder, that you may clarify to the people what was revealed to them, and that they may reflect."
<b>The Bee (an-Nahl); 69</b>	"Then eat of all the fruits, and go along the pathways of your Lord, with precision. From their bellies emerges a fluid of diverse colors, containing healing for the people. Surely in this is a sign for people who reflect."
<b>The Romance (Ar-Rüm); 8</b>	"Do they not reflect within themselves? God did not create the heavens and the earth, and what is between them, except with reason, and for a specific duration. But most people, regarding meeting their Lord, are disbelievers."
<b>The Romance (Ar-Rum); 21</b>	"And of His signs is that He created for you mates from among yourselves, so that you may find tranquility in them; and He planted love and compassion between you. In this are signs for people who reflect."
<b>Sheba (Saba); 46</b>	"Say, "I offer you a single advice: devote yourselves to God, in pairs, or individually; and reflect. There is no madness in your friend. He is just a warner to you, before the advent of a severe punishment."
<b>Trongs (Az-Zumar); 42</b>	"God takes the souls at the time of their death, and those that have not died during their sleep. He retains those for which He has decreed death, and He releases the others until a predetermined time. In that are signs for people who reflect."
<b>The Mobilization (Al Hashr); 21</b>	"Had We sent this Quran down on a mountain, you would have seen it trembling, crumbling in awe of God. These parables we cite for the people, so that they may reflect."
<b>Kneeling (Al-Jāthiyah); 13</b>	"And He placed at your service whatever is in the heavens and whatever is on earth all is from Him. In that are signs for a people who think."
<b>The Enrobed (al-Muddathir); 18</b>	"He thought and analyzed."

ways been mentioned in plural form as the vision sites are more than two inside the brain. Vision is composed of different parts, colors and perceptions, which are completely apart but in permanent contact and work together. Another point that is put across this verse is that vision and auditory senses of human beings are not inside their eyes and ears.

According to verses 13th to 16th of the Clot, "Do you see how he has denied the truth and turned away from it? Does he not know that God observes everything? Let him beware! If he does not desist, we will drag him by

forelock - his lying, sinful forelock." Cortex frontal neuroscience also confirms that it is the front side of the brain, which thinks, schedules, analyses, and makes decisions; it (lies) and makes mistakes. It is also the center of precautions and emotions or the desire for precautions and apathy. It is also the front part of the brain where signals are sent to the part that feels fear and/or reduces them (fear is sensed by the fear center, but it is the front part of the brain that decides whether a person feels scared or not) (26).

#### 4.2.2. The Second Phase of Thinking

According to Biology and science, the brain either forms fresh synopses or improves old ones as it thinks towards/about a topic. That is why it eases inter-cell connection and makes more cells involved in network connections. As the level of thinking increases, greater parallel sense entries become involved, for example in a specific issue more data is obtained. The possibility of unifying different parts of the brain particularly brain cortex increases. Generally, the envelopment ability on the topic enhances and particularly, production of clear projection or a clear theory about the topic grows (27).

“Would any of you, being a man well advanced in age with helpless children to support, like to have a garden of dates and grapes, watered by rivers and containing all kinds of fruits, stricken by fiery whirlwind and utterly scorched? Thus God makes his signs clear to you so that you may reflect” (The Heifer, 266)

In this verse, exploitation of imagination is clearly emphasized. This means forming a general projection and making a final result is due to the use of imagination. (as everyone has seen a prosperous garden as well as a dried and destroyed area) and a person could imagine or remember what he has seen.

#### 4.2.3. The Third Phase of Thinking is the Stage Where Hallucination Transforms to Intellection

Thinking at this level leads to the production of laws. This level of thinking (intellectualization) belongs to particular groups of researchers. In fact, effective thought is the path of crossing from sense to intellectual content (28, 29).

“They ask you [prophet] about intoxicants and gambling. Say, there is great sin in both, although they have some benefit for people, but their harm is greater than their benefit.’ they ask you what should they spend [in God’s cause]. Say, whatever is surplus to your needs.’ Thus God makes his commandments clear to you so that you may reflect” (The Heifer, 219) (24).

From the biological point of view, it has been proved that obtaining some mental diseases could be prevented by drinking a little bit of wine, while, other wide studies show that consumption of wine and other addictive compounds either erases or vanishes the connections between different parts of the brain cortex and brain. This is why it perishes thinking ability. It is interesting to know that new studies express the same disadvantage for the act of gambling.

## 5. Discussion

From the perspective of physiological science, the brain is an extraordinarily developed calculator system and as a computer has an entering path (senses ways), a section for saving data (memory), and a section for analyzing information and conclusion and exiting gate. Ocular, audio, touch, taste, and other information attend to brain through sensual ways and then they are either recorded or analyzed. Then orders will be conveyed to different organs through dynamic ways and lead to action. In the process of thought, different sections of the brain are involved. One of the most important parts engaged in thought is the prefrontal cortex. Thinking process includes creativity, decision making, aesthetics, judgment, solving problems, and so forth (30, 31).

From the perspective of neurologists, thought is the harmonic and constant application of neurons present in a gray brain cortex. These neurons have a wide connection to those responsible for vision, audio, smell, memory, and abstract issues. It should be noted that the connection between neurotic cells, known as synopses, could be improved by promoting sense entries (32). From a biological point of view, thought is a result of interference of all the synopses present in our brain and the consequence of that will emerge as a word sentence or different kinds of behavior (33). By regarding these sentences, there is a great similarity between biological idea and humanities view in the field of thought and contemplation. In 2003, a group of scientists realized that the center of thought, deciding, truthfulness as well as mendacity is the front part of the brain and when someone lies, his frontal lobe or prefrontal acts more than other parts. This section is most influential in human beings’ behavior (34).

Scientists realized this fact in 2003, whereas the Holy Quran has mentioned this issue in the clot verses 13 to 16: “Have you considered if he gives the lie to the truth turns (his) back, does he not know that Allah does see?, nay! if he desist not, we would certainly smite his forehead, A lying sinful forehead” (The Clot, 13 to 16).

This it could be claimed that introduction of the human being’s brain function has been the most important aim of Holy Scriptures, specially the Holy Quran, leaders as well as great Islamic intellectuals. One of the most significant parts of this function is the ability of unifying various sections of the brain in order to obtain a specific intention, which is thought. Due to the great wideness of human’s brain cortex that is not comparable to any other creatures, the human being’s thought is also extremely different from others and covers different forms of thinking from concrete to abstract. The cortex is thus a powerful source, which can conquer science and cognition. Re-

searches on mysterious parts of the holy Quran have begun since the recent decades and results have unveiled interesting concepts during the recent years. These results, interestingly, had been stated long time ago in the holy scripture of Muslims. This reminds us of our neglect of this endless scientific source, whereas the scientific secrets of The Holy Quran could be easily revealed by making a connection between medical sciences, basic sciences, and Quranic sciences. Eventually, there are some verses in the Holy Quran, which have a great emphasis on thought. These verses continuously ask us to investigate and pay attention to what our apparent and interior senses feel in order to comprehend the system, doctrine as well as the secrets of the creation in the way we intend, and then realize how the thought function and where they come from. Life without thought will not be maintained and extended any more. Existence spreads as the thought strength does so and its opposite is also true. The experiments and observations of each and every person confirms this claim. God has promoted the level of humans compared to other creatures, with the blessing of thought. People can conquer the peak of perfection if they realize its value, and keep applying it in different conditions and prospects. Thought and contemplation are listed among the most important issues in the religion of Islam. The Holy Quran invites people towards thought by expressing its value and holiness. It expects human beings to think in the fields, which actuate them to perfection; everything is not worthy of thought and time and only those issues, which direct us to the truth and factualness and put us in the path of promotion and growth are able to give us mental strength. Finally, there is a hope of greater connection between the community of researchers in different fields with Quranic scientists, which might lead us not only to understand the holy words of Quran in a better way but also to discover the secrets of our scripture and reach the highest level of thought and subsequently, realize the mystery of permanence.

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