

## **Analysis Of The Role Of Brain Education In Developing The Spirituality Character MPAI Students UAD Yogyakarta**

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### **Abstract**

This study aims to analyze the role of brain education in developing the spirituality character of Master of Islamic Education students at Ahmad Dahlan University Yogyakarta. Neuroscience course material (brain education) is used to explain the neurobiological mechanisms behind spiritual behaviors and conditions, such as meditation, self-awareness, and emotional control. This research uses Library research method with qualitative approach. The research findings reveal that brain education at MPAI UAD integrates neurobiological understanding of spiritual experiences such as prayer, reading the Koran, and religious activities to develop students' spiritual character. Neuroscience research reveals the neurobiological mechanisms behind spirituality, such as the role of neurotransmitters, brain wave activity patterns, and changes in brain structure due to spiritual practices. Recent findings highlight the existence of a God spot or center of divinity and most recently the existence of complex spiritual circuits in the brain that process spiritual experiences in an integrated manner. The conclusions in this study are that this research integrates brain education and spiritual character development in the context of Islamic religious education. Neuroscientific findings reveal the neurobiological mechanisms of spiritual experiences, including the "God Spot" and spiritual circuits in the brain. This approach enables the dialogue of science and spirituality to understand the human experience holistically while maintaining an integrated approach.

**Keywords:** *Brain Education, Spiritualist Character, Students*

## **INTRODUCTION**

Today, we can witness many interesting changes in the domain of spirituality and religiosity. While technology and material progress continue to advance rapidly, interest in the search for deeper existential meaning and higher purpose is increasing. This development has changed our paradigm towards spirituality. Spirituality is an important aspect in the formation of a whole human character. Spirituality is not only related to religious beliefs, but also includes inner dimensions, values, meaning of life, and connection with something transcendent. The development of spirituality from an early age can provide a strong foundation for individuals in facing the challenges of life and forming a positive character. (Wasisto, 2012). Many factors influence a person's spiritual understanding, one of which includes individual experience and learning things related to spirituality. One of the scientific disciplines that studies spirituality is neurospirituality, which is a branch of neuroscience.

But in recent decades, research in the field of neuroscience has provided new insights into how the human brain is involved in spiritual experiences and character development processes. Studies show that certain activities in the brain, particularly in the prefrontal, parietal and temporal areas, are associated with spiritual experiences, meditation and appreciation of values. Brain-based education is an approach to learning that takes into account the principles of the brain and neuroscience. By understanding how the brain learns, processes information and forms neuronal connections, learning methods can be designed to optimize the brain's potential and support the cognitive, emotional and spiritual development of individuals.

The development of neuroscience has influenced the understanding of spirituality. Spirituality includes the meaning of life, rituals, positive emotions, and spiritual experiences that direct life goals to be important (Asrori, 2020). The spiritual neuroscience approach is an important alternative to improve Islamic Religious Education learning (Fadkhulil Imad Haikal Huda, 2022). This approach has the advantage of integrating neuroscience in multidisciplinary studies. Therefore, education should capitalize on these advances in neuroscience, especially since in some countries, neuroscience has been incorporated into the education curriculum (Nurul Istiqomah & Rio, Pebrian & Susi, 2018).

Spiritual neuroscience is a sub-discipline that focuses on the study of the brain and human spirituality. This sub-discipline has a strong relevance to the characteristics of PAI as both are related to the study of God (Heni Listiana, Achmad Yusuf, Supandi, 2021). According to Ari Ginanjar, an Emotional Spiritual Quotient (ESQ) expert, within humans there is what is referred to as the "God Spot". God Spot refers to the spiritual potential that every human being is born with. It is the deepest aspect of the human personality that is connected to God or the Almighty. This God dimension is the center

of a person's inner strength, intuition and spiritual awareness. It is the source of human values such as love, truth, justice, and benevolence. By developing and activating the God Spot, one can achieve a balance between intellectual intelligence (IQ), emotional intelligence (EQ), and spiritual intelligence (SQ) that complement each other (Al Ahyadi, 2015).

Neuroscience at MPAI UAD is an interesting and important course to learn. Neuroscience itself is the study of the human nervous system, especially the brain, and its relationship with behavior and mental processes. (Hidayat, 2017). In this course, students will study the structure and function of the brain in detail, starting from neurons as the basic unit of the nervous system to the division of major areas of the brain such as the cerebral cortex, limbic system, and others. The material also covers the process of neurotransmission, brain development from the womb, and research methods in neuroscience. Neuroscience theories are combined with concepts in psychology to provide a complete understanding of mental processes (Taufik, 2010). In addition, this course also touches on current issues in neuroscience such as cognitive neuroscience, social neuroscience, as well as neuroscience applications in the fields of mental health, education, and spirituality. The discussion of neuroscience in Islamic religious education is certainly a major highlight in this MPAI study program (Yusmaliana et al., 2022). Although the material is quite challenging, this course is very important to broaden students' understanding in understanding psychological phenomena and their relationship with human spirituality as a whole (Yakin, 2018).

Some previous studies have reviewed character brain education in Islamic education, linking a sharp analysis of Islamic character education with neuroscience. In addition, there are also studies that examine character education through a neuroscience-based behavioristic approach. The results of these studies show that students need motivation and supervision from educators in internalizing religious teachings appropriately according to the goals of school education (Nashihin, 2018). In addition, there is also research that reviews the brain and mind from the perspective of the Quran and neuroscience. This research discusses human perfection that lies in the normality of reason, while the brain functions as the control center of human activity (Ahwinarto & Suyadi, 2020). According to Suyadi, character education actually helps develop the potential of the human brain, with the six brain systems playing a role in shaping individual attitudes and behavior. The importance of maintaining the balance and optimal performance of the brain allows better control of human behavior by involving the emotional and spiritual dimensions (Suyadi, 2017). Then in the research conducted by (Dahuri, 2023) By using the brain effectively and naturally in the thinking process, a person can demonstrate good morals that are reflected in spiritual values in their daily life. This will ultimately increase their faith and devotion to God, because as

humans, they become more diligent and consistent in their worship.

This research presents a new perspective in the world of Islamic religious education by integrating the brain-based education approach and holistic spiritual character development. The brain education approach considers how the brain works in the learning and teaching process, involving an understanding of neurology, cognitive psychology and learning science. The aim is to create an optimal learning environment by utilizing the brain's potential to the fullest. On the other hand, spiritual character development is at the core of Islamic religious education, which focuses on building a strong character based on spiritual principles in Islamic teachings. It emphasizes on the appreciation of religious values, such as faith, piety, noble character, and relationship with Allah SWT. The aim is to form individuals who are not only academically intelligent but also have spiritual maturity.

By integrating these two approaches, this research seeks to create a novelty in the context of Islamic religious education. It combines the brain education approach with spiritual character development efforts in the curriculum and learning methods. By utilizing an understanding of how the brain works, this research aims to facilitate effective learning in instilling Islamic spiritual values. This is done by creating a learning environment that is conducive to cognitive development as well as the formation of a strong spiritual character.

Through this integration, this research is expected to produce learning methods that are more effective and optimize the potential of students as a whole, both in terms of cognitive and spiritual. By integrating rational and spiritual aspects in the education process holistically, it is hoped that individuals can be formed who not only have high intellectual intelligence, but also have a strong spiritual character in accordance with Islamic teachings. The success of this research will provide a better understanding of the role of the brain in shaping spiritualist character, as well as provide a basis for developing more effective teaching methods in achieving the objectives of Islamic religious education, especially at advanced education levels such as Masters Programs. (Lalu Abdurrahman Wahid, 2022).

## **METHODS**

In this study, researchers used the library research method (library research) Library research is a traditional research method that has been widely used by researchers to evaluate various scientific studies (Nashihin, 2023). By using this method, the researcher seeks to conduct an in-depth and comprehensive analysis and obtain optimal results. In the context of this research, the desk research method is used to explore and analyze the relationship between brain education and spiritual character development in the context of Islamic religious education. This research also involves

collecting data from various sources relevant to the object of research, such as books, scientific works, and journals. The approach used is qualitative, where data is obtained through literature study by carefully examining articles, books, and scientific journals related to the influence of brain education on the character of special spirituality (Pahleviannur, M. R., De Grave, A., Saputra, D. N., Mardianto, D., Hafrida, L., Bano, V. O., ... & Sinthania, 2022). To enrich the data, researchers also conducted unstructured interviews with students of the Ahmad Dahlan University Master of Islamic Education Study Program (MPAI UAD) regarding their opinions on Neuroscience courses and their influence on their spirituality character. Data was collected by tracing and collecting information from various sources that became a reference for research. After the data is collected, a discussion is carried out on all the problems studied to produce accurate and precise data and study materials. The data that has been collected is then analyzed qualitatively with an approach from the general to the specific, in accordance with the method used in this study (Hakim, 2023).

## **RESULTS AND DISCUSSION**

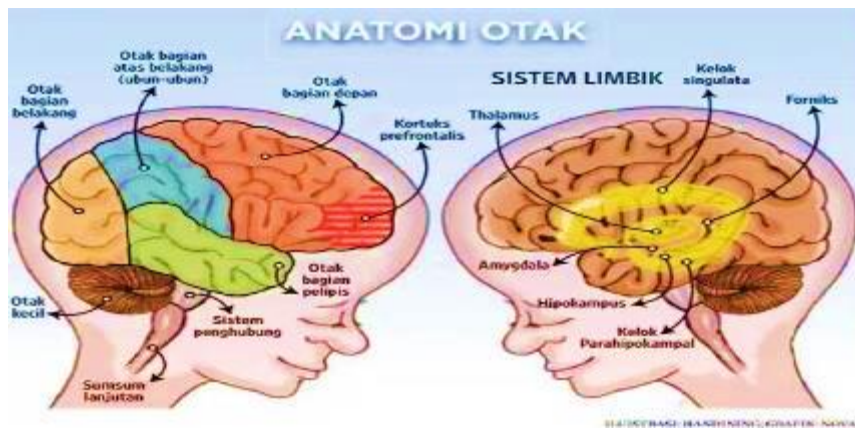
### **1. The Role of Brain Education at MPAI UAD Yogyakarta**

The brain is a very important part of humans. Not only as a physical organ, but also as a control center that regulates various bodily functions and complex mental processes. Even in religious views, the brain is also considered a tool that enables humans to carry out their duties as caliphs on earth. (Tamin, 2022). The brain's ability to adapt and develop over time is amazing. The concept of "use dependent development" that you mentioned is one of the things that makes the brain so unique. The brain's ability to renew itself and improve its performance as it experiences and learns is what sets it apart from machines or other inanimate objects (Ahwinarto & Suyadi, 2020). With its complex capabilities, the brain allows humans to do a variety of things, from thinking, feeling emotions, making decisions, to performing reflexes and survival. Without the brain, humans would not be able to do many things that make them unique and able to adapt to the surrounding environment. So, it can be said that the brain is one of the most defining aspects of human identity as an intelligent and complex being (Setyawan, 2017).

For centuries, humans have relied on brainpower and reasoning as the main foundation in various aspects of life. However, a view that puts intellectual intelligence above all else often neglects other aspects such as attitude and behavior. This can result in detrimental imbalances in the lives of individuals, which can eventually give rise to serious multidimensional crises (Dr. Jonaedi Efendi, S.H.I., M.H, Prof. Dr. Johnny Ibrahim, S.H., S.E., M.M., 2016). Thus, there are three important

things that can be drawn from the description: first, the importance of responding to the findings of neuroscience in the development of education; second, the recognition that all aspects of humans, including character and knowledge, are related to brain processes; and third, the need for harmony between intellectual intelligence and emotional and behavioral aspects to achieve balance and a better quality of life (Rusuli, 2014).

Brain Education at MPAI UAD Yogyakarta offers a different approach amidst the density of materials and theories in education. Through this approach, individuals are guided to deeply understand how their brain works and reach their full potential. For example, activity in the prefrontal cortex and limbic system are linked to meditation skills, emotional control, and self-awareness which are important in spirituality.



**Figure 1. Anatomy of the Brain**

Spiritual experiences such as meditation, prayer, and dhikr practices can be understood and analyzed in greater depth through neurospiritual education (Fitriani & Abdullah, 2021). This helps students understand spiritual aspects more scientifically and rationally, which can strengthen the foundation of their faith. This was expressed by Muhammad Ilham Baihaqqi, one of the MPAI UAD students.

*"In the context of Islamic religious education, brain education can be a very valuable addition because it helps students understand religious teachings more deeply, and develop a strong spiritual character"* (Baihaqqi, 2024).

Then in an interview with Reyhan, one of the MPAI UAD students, he also said

*"In my opinion, brain education is an effort to optimize the potential of our brain through scientific approaches such as cognitive learning and strategies to improve brain performance. The role of brain education in spirituality character development is to help us understand and control cognitive and emotional*

*processes related to spiritual values, such as self-awareness, empathy, and inner calm" (Reyhan, 2024).*

From the interview, the researcher concluded that understanding the relationship between brain activity and spiritual experiences is important. Brain education helps us know how the brain functions while we are engaged in spiritual practices such as meditation, prayer or reading scriptures. By understanding these brain activation patterns, we can design strategies and exercises that can enhance brain performance in a spiritual context. For example, mindfulness or meditation practices can stimulate the brain regions responsible for emotion regulation, empathy and self-awareness.

Then further researchers explore how the role of brain education on the relationship between students' spiritual characteristics. Muhammad Ilham Baihaqqi as one of the students at MPAI UAD revealed the importance of brain education as a means of developing students' spiritualist characteristics. The following are the results of his interview:

*"I think brain education is very important because the brain is the control center for all the functions of our body and mind. When we understand how the brain works, we can understand how our mindset and behavior are formed. This is particularly relevant in the development of spiritualist characteristics as spirituality involves a deeper understanding of the self and the purpose of life" (Baihaqqi, 2024).*

This is also in line with Reyhan's expression who said.

*"The brain also has parts associated with the subconscious, the place where our deepest beliefs, values and motivations are formed. Through brain education, we can open access to this subconscious and unearth spiritual potential that may not have been revealed" (Reyhan, 2024).*

Based on the results of the interview above, the researcher concluded that the brain is the control center for all functions of the human body and mind. By understanding how the brain works, we can understand how our thought patterns and behaviors are formed. An understanding of the brain is particularly relevant in the development of spiritualist characteristics as spirituality involves a deeper understanding of self and life purpose. The brain has parts associated with the subconscious, the place where our deepest beliefs, values and motivations are formed. Through brain education, we can open access to the subconscious and unearth spiritual potential that may not have been revealed yet. Overall, brain education helps us understand ourselves deeply, including the spiritual aspect, so that we can better develop spiritualist characteristics (Akbar,et.al, 2023).

Furthermore, Professor Suyadi as Head of MPAI UAD Yogyakarta as well as a lecturer in Neuroscience and learning theory explained the influence of character education on brain education. It is explained in his journal article that character education actually helps develop the potential of the human brain, with the six brain systems playing a role in shaping individual attitudes and behavior. The importance of maintaining the balance and optimal performance of the brain allows better control of human behavior by involving the emotional and spiritual dimensions. (Suyadi, 2017).

In addition, several activities are often carried out at MPAI Ahmad Dahlan University in supporting the development of students' spiritual character. Such as always starting learning by saying a prayer together, and ending also with prayer. Then conduct research whose approach always leads to Islamic studies with collaboration with other disciplines. Facilities for places of worship such as mosques in the campus environment also support activities to develop students' spirituality characteristics at MPAI UAD Yogyakarta. The following is a more detailed explanation.

1. Starting and ending learning with prayer together Before starting teaching and learning activities, lecturers and students pray together. This is a form of respect to Allah SWT and realizing that knowledge is a gift from Him. By praying, they ask for blessings and ease in the learning process. After finishing, they also close with a prayer as an expression of gratitude and ask that the knowledge gained can be useful.
2. Research with an Islamic studies approach and collaboration with other disciplines MPAI Ahmad Dahlan University encourages students to conduct research that integrates Islamic studies with other disciplines. For example, in the field of education, students can conduct research on learning methods that are in accordance with Islamic values. Or in the field of psychology, they can study spiritual aspects in the development of the human soul. This approach helps students understand the interrelationship between religious and general sciences and enriches their spirituality.
3. Facilities for Places of Worship (Mosques) in the Campus Environment The existence of a mosque in the campus environment provides a means for students to carry out worship regularly, such as congregational prayers and Islamic studies. This helps students to practice their spiritual values and grow closer to Allah SWT. In addition, the mosque can also be used as a place to gather and discuss spiritual issues, thus adding insight and fostering a spirit of spirituality among students.



4. Spiritual extracurricular activities MPAI Ahmad Dahlan University also organizes spiritual extracurricular activities, such as Quranic studies, religious lectures, and commemoration of Islamic holidays. These provide opportunities for students to deepen their religious knowledge and apply it in their daily lives. Such activities also facilitate interaction between students and spiritual sources, so that they can learn directly from people who have experience in the field of spirituality (Observation of Religious Activities of MPAI UAD, 2024).

With these various activities, MPAI Ahmad Dahlan University seeks to create an environment conducive to the development of the spiritual character of its students. This is in line with the university's vision and mission to produce graduates who not only have intellectual intelligence, but also spiritual intelligence.

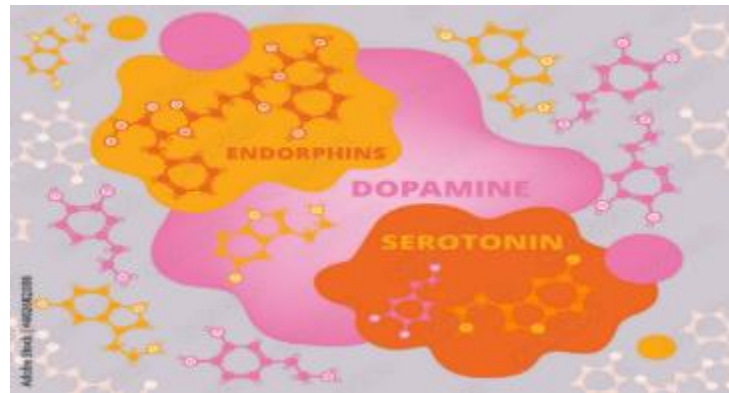
## 2. Spiritual Development and Modern Neuroscience

Developments in the field of cognitive neuroscience have revealed more in-depth information about the connection between the brain and spiritual experiences (Rohmadi, 2018). Neuroimaging technologies such as fMRI have enabled the identification of brain areas that are active while individuals engage in spiritual practices such as meditation, prayer, reading the Qur'an, prayer and other acts of worship. Some studies have also highlighted specialized brain networks involved in spiritual experiences, such as the default mode network and the saliency network. These networks have an important role in the processes of self-awareness, attention and emotion regulation that influence a person's spiritual experience. The neurobiology of spirituality is becoming a major focus in modern neuroscience research. This research includes understanding the neurobiological mechanisms behind spiritual experiences, such as the role of neurotransmitters, alpha and theta brainwave activity, and the impact of long-term spiritual practices on brain structure and function (Suyadi, 2020).

Neurospiritual research has uncovered complex neurobiological mechanisms behind spiritual experiences and religious practices performed by humans.

1. At the neurochemical level, there is an important role of several neurotransmitters such as dopamine, serotonin and endorphins associated with spiritual experiences (Irfan, 2017).
  - a. *Dopamine*, which plays a role in positive experiences, motivation, and rewards, increases in levels when individuals engage in spiritual practices such as prayer, scripture reading, prayer, meditation or other worship.
  - b. *Serotonin*, which is associated with mood regulation, emotions, and a sense of peace, also increases in levels during intense spiritual experiences.

- c. *Endorphins*, known as natural happiness hormones, are also released during deep spiritual practices, providing a sense of calmness to the individual.



**Figure 2. Structure of Neurotransmitters**

2. At the level of brain activity, neurospirituals observed an increase in alpha (8-12 Hz) and theta (4-8 Hz) brainwave activity during spiritual practices (Ubudiyah, 2020). Alpha waves are associated with states of relaxation, meditation and increased awareness, while theta waves are associated with states of deep relaxation, intuition and emotional processing. During prayer, meditation or scripture reading, there is an increase in alpha wave activity in the prefrontal cortex and other brain regions, and an increase in theta waves as the spiritual experience reaches its peak.



**Figure 3. Brain Wave Activity**

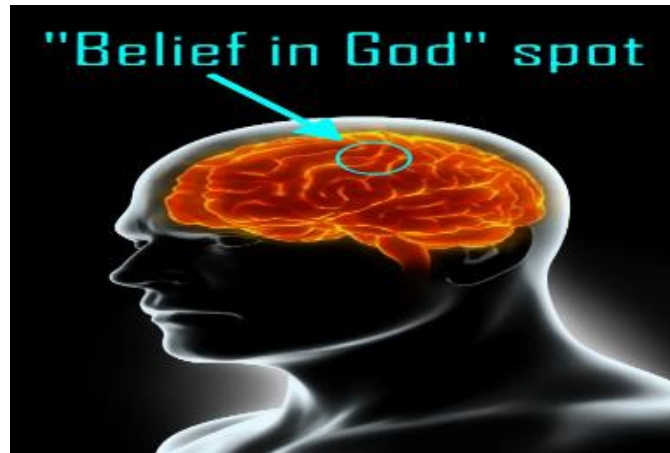
A more surprising finding was the impact of long-term spiritual practices on the structure and function of the brain itself. Individuals who meditate regularly show increased gray matter volume in brain regions associated with attention, emotion regulation, and empathy, such as the prefrontal cortex and insula. The more surprising finding is the impact long-term spiritual practices have on the structure and function of the brain itself. Individuals who meditated regularly showed

increased gray matter volume in brain regions associated with attention, emotion regulation, and empathy, such as the prefrontal cortex and insula (Novia, 2010). Connectivity between brain regions involved in spiritual experiences also increases after long-term meditation practice. In fact, long-term spiritual practice can improve cognitive capacities such as attention, working memory and emotion regulation. In addition, spiritual neuro-science also reveals differences in brain activation patterns in various spiritual practices. When praying, there is increased activity in brain regions associated with focused attention, emotions, and moral decision-making. Meanwhile, when reading the Quran, there is stronger activation in brain regions associated with language processing, memory, emotions, and spiritual experiences compared to reading a regular book.

Neuroscience studies have also revealed a strong connection between spirituality and mental health (Hanafi, 2016). Spiritual practices such as meditation can activate areas of the brain associated with emotion regulation, mindfulness and stress resilience, which in turn contribute positively to an individual's mental health. With this development, there is a greater effort to integrate scientific discoveries with spiritual traditions from different cultures and religions. This opens the door for dialogue between science and spirituality in deepening the understanding of the whole human experience. An interdisciplinary approach is also increasingly emphasized in the study of spiritual neuroscience, involving collaboration between various disciplines such as neuroscience, psychology, anthropology, philosophy and religious studies (Maunah, 2023).

According to Ari Ginanjar, an Emotional Spiritual Quotient (ESQ) expert, every human being has a spiritual potential called God Spot. God Spot refers to the deepest aspect of the human personality that is connected to God or the Almighty. It is the center of one's inner strength, intuition, and spiritual awareness. God Spot can be likened to a point or area within a human being that is the bridge between ourselves and the Creator. (Al Ahyadi, 2015). This God Spot has been present in every human being since birth, but is often neglected or covered by the busyness of daily life and the influence of the surrounding environment. Therefore, it is necessary to develop and revive this God Spot so that we can achieve a balance between intellectual intelligence (IQ), emotional intelligence (EQ), and spiritual intelligence (SQ) that complement each other.

This God dimension or God Spot is the source of human values such as love, truth, justice and virtue. When we are able to access and activate our God Spot, we will become more sensitive to these values and be able to apply them in our daily lives (Chaer, 2017). This will make us a more complete, thoughtful human being with strong integrity.



**Figure 4. God Spot in the human brain**

In addition, the God Spot is also the source of deep intuition and inner strength. This intuition can help us make the right and wise decisions, even in difficult or uncertain situations (Supriaji, 2019). This inner strength can also be a source of motivation and resilience in facing the challenges and trials of life. Developing and activating the God Spot requires a conscious and consistent effort in practicing spiritual activities such as meditation, prayer or contemplation. Through these practices, we can calm our minds and hearts, and open ourselves to the presence of the Almighty in our lives.

Then recent findings in neurospirituality have changed the paradigm on the neurobiological basis of spiritual experiences. Previously, many believed that spirituality originates from one specific brain region called the God Spot. However, recent research reveals that spiritual experiences instead involve the activation of a complex and integrated set of brain networks or circuits (Husnaini et al., 2021). This spiritual circuit is a network consisting of several brain regions that are interconnected and work in synergy. These brain regions include the prefrontal cortex, anterior cingulate cortex, insula, and several other regions associated with cognitive, emotional, and spiritual functions. During spiritual experiences, there is increased functional connectivity between these brain regions, which means that the communication and synchronization of neural activity becomes stronger. This connectivity allows for better integration of information and coordination in processing spiritual experiences holistically (Handojoseno, 2016). Interestingly, the activation of spiritual circuits is dynamic and fluctuates according to the stage and intensity of the spiritual experience.



**Figure 5. Spiritual Circuit**

This concept of spiritual circuits provides a more comprehensive understanding of the Neurospiritual basis. By understanding these circuits, we can better understand how the brain processes and integrates cognitive, emotional and spiritual aspects holistically, and how spiritual practices can shape and optimize these circuits in the long run. These findings open new avenues in exploring the potential of spirituality in improving mental health and overall human well-being.

## **CONCLUSION**

The brain has a central role in enabling humans to perform various activities, including spiritual experiences. Brain education helps to understand how the brain works and optimize its potential, including in the context of spirituality. At MPAI Ahmad Dahlan University, brain education is integrated into learning to develop students' spiritual character through neurobiological understanding of spiritual experiences such as reading prayers at the beginning and end of learning, conducting research on Islamic studies, mosque facilities that become the center of student rituals and spirituality, reading the holy book Alqur'an, and PHBI activities that are always held. Modern neuroscience research reveals the neurobiological mechanisms behind spiritual experiences, such as the role of neurotransmitters, patterns of brain wave activity, and changes in brain structure due to long-term spiritual practices. God Spot findings refer to the deepest aspect of the human personality that is connected to God or the Almighty. It is the center of a person's inner strength, intuition and spiritual awareness. Recent research has also found that there are complex spiritual circuits in the brain, which involve a network of several brain areas in processing spiritual experiences in an integrated manner. Brain education and understanding spiritual neuroscience helps to develop spiritual character in a more in-depth and scientific manner, while respecting religious and cultural values. This opens up opportunities for

dialogue between science and spirituality in understanding the human experience in a holistically selected manner

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