Integrating Neuroscience Perspectives in Islamic Religious Education: Strategies for Developing Islamic Character in Students

Etika Pujianti
Universitas Islam An Nur Lampung, Indonesia
etikapujianti@gmail.com

Abstract

In fact, the construction of education carried out by a teacher is an effort to build individual students to obey and comply with the provisions of applicable values and norms. Moreover, the rules and procedures for educational order will be seen to be successful if students or learners have good skills and character. And this study aims to see how an educational construction is attempted by teachers in building religious character based on neuroscience education in Islamic religious education. By using a case study research study on in-depth material exploration in the context of structured interviews to dig up information and studies from religious education teachers and learners. Data display, data reduction and data verification are data analysis methods used in this study. With the scope of the results that a building attempted by Islamic Education teachers in this study is that the development of religious student character is based on neuroscience abilities in instilling love for God Almighty (Allah SWT) and the Prophet Muhammad SAW. The efforts of Islamic religious education teachers are to teach, explain and define how humans as a whole should understand the importance of a pious character education value and provide peace/*tasamuh* to the soul and social. In this case, teachers, in addition to teaching and explaining, also try to demonstrate by applying these values. So that teachers can become role models or in terms of good role models and role models. Teachers' efforts to build and make students or learners aware of emotional awareness and skills in their efforts to handle emotions, emotional management, stress management and encourage with various motivations to students. So that such efforts and steps can be felt deeply by students/learners. In order for students or learners to be able to maximize their abilities and skills and intelligence that originate from the brain network system (neuroscience). And this effort aims to form the construction of students' abilities to be able to adapt optimally in various social conditions and has implications for their role as the development of perfect humans with maximum and Islamic thinking power.

Keywords: *Neuroscience, Character Building, Islamic Religious Education, Islamic Character*

INTRODUCTION

Building and forming character or in other words character building in students or learners is a discussion and discussion that is quite interesting to be raised in the current era of modern globalization. Building integrity and instilling until the application of character values in the current era of disruption is considered very important and urgent. With the spread of issues and phenomena of the degradation of values or morality in social audiences, especially teenagers, it has become a special concern for all groups[1]. In the study of psychology, we often recognize the transition period as identical to finding one's identity, and that is the process of life growth among teenagers. Starting with courage, initiative, and high appreciation from this age, so that efforts or a series of activities can emerge that can appreciate something excessively. The impact is that teenagers often, with their efforts to find a transformed identity, often cause disputes, social tendencies among them and commotions that end up seeking recognition. And actions or commotions caused by trivial matters can trigger internal and social conflicts collectively. Because the tendency for commotions to arise from male teenagers is often accompanied by physical actions, and is different from actions caused by female teenagers, namely by giving rise to an arrogant and indifferent attitude with a tendency to be grumpy and easily angered.[2] [3]. For that, let us correlate school education with character building with the tendency that should have an impact on the formation of students' character.

In relation to this, there are quite a few studies or research developments that talk about the efforts and breakthroughs of teachers (formal and non-formal schools), both private and state, in making efforts to shape students' characters. As has been done by[4], the research conducted is to see how the performance and efforts of teachers in building the foundation of student character in Islamic religious education. Various methods are carried out such as interviews, documentation and observations are carried out in depth and in detail in order to find out how influential teachers are in building student character at SMAN 1 Bima City. In this study, several conclusions were obtained stating that the efforts or strategies of Islamic Religious Education teachers in forming and building student character in several ways, such as a) Carrying out religious guidance that is correlated with character education, b) Habituation in implementing good behavior or attitudes towards teachers, and c) Carrying out assessments and guidance for students[5].

---

[1] Intan Mayang Sahni Badry dan Rini Rahman, "Upaya Guru Pendidikan Agama Islam dalam Menanamkan Nilai Karakter Religius," *An-Nuha* 1, no. 4 (2021): 573–83, https://doi.org/10.24036/annuha.v1i4.135.

[2] Cl Pattinama, "Remaja dan Permasalahannya dalam Tinjauan Psikologis," *OSFPreprints* 3, no. 2 (2015).

[3] Rahmah Hastuti, *Psikologi Remaja* (Yogyakarta: Andi, 2021).

[4] Nasrullah Nasrullah, "Upaya Guru Pendidikan Agama Islam Dalam Membentuk Karakter Siswa (Studi Kasus Di Sma Negeri 1 Kota Bima)," *JIE (Journal of Islamic Education)* 3, no. 2 (2019): 163, https://doi.org/10.29062/jie.v3i2.99.

[5] Nasrullah.

The same thing is stated by[6], where the research discusses the efforts of teachers in building and forming the character of the nation starting from early childhood school students. That in building student character, he stated that there are at least five things that need to be done and considered in depth. First, Teachers provide an understanding and definition of character with a pattern that is appropriate for AUD, Second, provide direction in the form of student practices that have character, Third, provide good examples wisely to AUD to be easily accepted, Fourth, Habituation of instilling character values, and Fifth, expanding students' motor skills to behave and behave according to the manners taught.

There is also a study that raises the aspect of development and teacher efforts to make elementary school students' characters independent with child-friendly methods. In this research study, it is stated that education is very important to be implemented specifically regarding the principles of students. Then efforts and breakthrough steps for developing students' characters with several ways or methods including habituation, learning, developing extracurricular activities, implementing and making the school's vision and mission independent and developing characters from school culture[7].

In some previous studies, we need to provide a sketch and space for a study with a focus on character formation and building is important if we provide character education stimulants. Because in this case, we will provide stimulation to an activity or student decision in implementing character education for the sustainability of later life. With the development of how character education with neuroscience-based stimulants can be applied. For example, preparation in the form of school program planning, actuating programs at school, support systems and other policies from the school, building a conducive climate and in accordance with the objectives of character education, and the availability of HR skills[8].

Because education brings civilization to the establishment of an order with an inherent character identity. And education is fundamentally a determinant and also a pioneer for student character. Therefore, education presents data that education is present to individuals and collectives of social humans in building character through nurturing and deep attention.[9]. If the basis of neuroscience education is applied in

---

[6] Muhammad Yunus, "Upaya Guru Membentuk Karakter Bangsa Pada Anak Usia Dini Melalui Proses Pembelajaran Di Yayasan Raudatul Athfal (Ra) Fathun Qarib," *Upaya Guru Membentuk Karakter Bangsa Pada Anak Usia Dini Melalui Proses Pembelajaran Di Yayasan Raudatul Athfal (Ra) Fathun Qarib* III, no. 2 (2015): 174–82.

[7] Wahyu Titis Kholifah, "Research & Learning in Primary Education Upaya Guru Mengembangkan Karakter Peserta Didik Sekolah Dasar Melalui Pendidikan Ramah Anak," *Jurnal Pendidikan dan Konseling* 2, no. 1 (2020): 115–20.

[8] Aas Siti Sholichah, "Urgensi Pendidikan Karakter Pada Anak Usia Dini Dalam Tinjauan Neurosains," *JECIES: Journal of Early Childhood Islamic Education Study* 1, no. 1 (2020): 01–14, https://doi.org/10.33853/jecies.v1i1.51.

[9] Usan Usan dan Suyadi Suyadi, "Implementasi Pendidikan Karakter Di Sekolah Dasar: Upaya Pendidik Membentuk Karakter Siswa Dalam Mempersiapkan Generasi Emas 2045 Berbasis Neurosains," *Muallimuna: Jurnal Madrasah Ibtidaiyah* 7, no. 2 (2022): 73, https://doi.org/10.31602/muallimuna.v7i2.6379.

school education, it can be predicted that the life of the nation and state in terms of character building will be in line with the pillars of state life.[10].

THEORITICAL REVIEW

Explaining the identity and terms of religious character based on neuroscience is an effort to systematically study how the brain's nervous system works in demonstrating the character building of students.[11]. One of the most natural human organs and located in the upper part of the human body, the brain is a gift from God that has the most noble position in the anatomy of the human body.[12]. If we examine this in depth based on its form and location, then the human brain and humans have a noble position compared to other creatures of God such as animals.[13] [14]. In this position, the animal's brain or head is as if level with the animal's body and/or parallel to the place where waste is stored or released.

In the study of neuroscience, the main discussion of this case will discuss the brain and is the value with the highest essence of humans themselves. Then education with a brain base as its driving force, scientifically this is a value that is designed by making it a long-term educational stimulant. The brain with its various working patterns which are the human support force drives life. Then we will get to know the six brain nervous systems that together carry out their working functions as considerations and development of human behavior, including.

First, the Prefrontal Cortex

PFC or prefrontal cortex is a series of brains in the cortical area located in the front position with the function of regulating cognitive and emotional reasoning abilities. In neuropsychological studies, we will be more easily familiar with the sentence executive function[15]which is the working system of the prefrontal cortex[16]. Then in this section as a brain structure system we will examine how the cognitive character domain that links the working memory system, shifting or cognitive

---

[10] Luh Kompiang Sari, "Pendidikan Karakter Perspektif dalam Pembangunan dan Pembentukan Moral Peserta Didik," *Widyacarya* 4, no. 1 (2020).

[11] Mardiah Mardiah, Syaifuddin Sabda, dan Ani Cahyadi, "Analisis Relevansi Neurosains dengan Pembelajaran dan Kesehatan Spiritual," *Journal on Education* 4, no. 4 (2022): 1489–1510, https://doi.org/10.31004/joe.v5i4.2197.

[12] Lusila Andriani Purwastuti Arif Rohman, *Epistemologi dan Logika: Filsafat untuk Pengembangan Pendidikan* (Yogyakarta: CV. Aswaja Pressindo, 2014).

[13] Vina Destiana dkk., "Hakikat Manusia (Perspektif Filsafat Pendidikan Islam)," *Jurnal Manajemen dan Pendidikan Agama Islam* 2, no. 1 (2024): 70–87, https://doi.org/10.61132/jmpai.v2i1.61.

[14] Djaelany Haluty, "Islam Dan Manajemen Sumber Daya Manusia yang Berkualitas," *Jurnal Irfani*, 2014, Vol.10, No. 1, hal 63–74.

[15] Clancy Blair, "Educating Executive Function," *Wiley Interdisciplinary Reviews: Cognitive Science* 8, no. 2 (2017): 1403.

[16] V Anderson, "Executive Function in Children: Introduction," *Child Neuropsychology* 8, no. 2 (2002): 69–70.

flexibility, and inhibition control is the executive function (EF) brain system.[17]. In depth, a more detailed study is the role of the prefrontal cortex as a design and decision-making system, consideration of cause and effect on the orientation of taking options and creativity of personality traits.[18] [19]. As a function of the nervous system, character education builds networks in the context of connectivity with the working system of creative values, potential appreciation, character education, achievement and individual progress. So, it is important that in building character education, education must optimize prefrontal control. Its purpose is to instill character values and norms in students, stimulate curiosity, act creatively, and a passion for reading.[20].

Second, the Limbic System

In the work of the brain, we will be familiar with the system that supports human emotional work, and it is the limbic subsystem of the brain. This system consists of several elements and in it there is the hypothalamus, amygdala, and hippocampus.[21]. These three elements of the brain are the boundary between the lower and upper parts of the brain, located in the cerebral cortex which is an important supplier for emotional decisions and memory.[22]. Along with the working patterns carried out by the amygdala and hippocampus, both of which are the main structures, in the limbic system it produces emotional situations or moods, angry, sad, happy or afraid. By maintaining homeostasis hormones such as the desire to eat because of hunger or drink because of thirst and sexual drive as well as the core of the emotional hepicenter and memory.[23].

The application of character education from limbic system stimulants is a correlation of students' honesty values, the growth of empathy and concern from a sense of humanity, eliminating intolerant attitudes and fostering independent

---

[17] Nani Restati Siregar, "'Cool' dan 'Hot' Brain Executive Functioning dan Perfomansi Akademik Siswa," *Buletin Psikologi* 26, no. 2 (2018): 97, https://doi.org/10.22146/buletinpsikologi.38817.

[18] Qaulan Sadida dkk., "STUDI LITERATUR MENGENAI ANAK USIA SEKOLAH DASAR DENGAN ADHD : PERSPEKTIF NEUROPSIKOLOGI ELSE (Elementary School Education," 2024, 2–4.

[19] Arini Dina Ismiati Arini Dina Ismiati, Ma'rifatul Ainiyah Ma'rifatul Ainiyah, dan Rosydina Robi'aqolbi Rosydina Robi'aqolbi, "Perbedaan Cara Pengambilan Keputusan antara Laki-laki dan Perempuan Menurut Al-Qur'an," *Al-I'jaz : Jurnal Studi Al-Qur'an, Falsafah dan Keislaman* 5, no. 2 (2024): 76–93, https://doi.org/10.53563/ai.v5i2.104.

[20] Rizky Asrul Ananda, Mufidatul Inas, dan Agung Setyawan, "Pentingnya Pendidikan Karakter pada anak Sekolah Dasar di Era Digital," *Jurnal Pendidikan, Bahasa dan Budaya* 1, no. 1 (2022): 83–88, https://doi.org/10.55606/jpbb.v1i1.836.

[21] Rezky A. Yastab, Taufiq Pasiak, dan Sunny Wangko, "Hubungan Kinerja Otak Dan Spiritualitas Manusia Diukur Dengan Menggunakan Indonesia Spiritual Health Assessment Pada Pemuka Agama Di Kabupaten Halmahera Tengah," *Jurnal e-Biomedik* 2, no. 2 (2014): 419–25, https://doi.org/10.35790/ebm.2.2.2014.4700.

[22] Astri Novia, *Melatih Otak Setajam Silet* (Yogyakarta: Media Pressindo, 2010).

[23] Suyadi Suyadi dan Mawi Khusni Albar, "Ngrowot Tradition in Neuroscience Study in Luqmaniyah Islamic Boarding School, Yogyakarta," *IBDA` : Jurnal Kajian Islam dan Budaya* 16, no. 1 (2018): 125–47, https://doi.org/10.24090/ibda.v16i1.1394.

discipline and love for nationality.[24]. So, it is necessary to pay attention to every element of education in building student character, the need to grow and instill the value of honesty in students, foster feelings of empathy and concern for the environment, increase learning motivation and/or stimulate students to strengthen memorization and memory in learning the Qur'an.[25]. And the application of prayers or other religious understanding can support students' ability to understand with love for their religion[26].

Third, Cyrus Cingulatus

Cyrus Cingulatus is a part of the brain that functions to change the flow and speed of actions carried out by every human being.[27]. Cyrus Cingulatus also regulates traffic flow as a value of cognitive strengthening flexibility, knitting together an aspect of cooperation with the ability to detect or analyze various aspects of personal errors.[28]. So, in the character education of Cyrus Cingulatus in terms of work patterns, it is to accumulate human activities that regulate emotions to act flexibly with the ability to sharply analyze errors or losses from decisions taken. And this basis can be used by teachers in their efforts to set students to instill flexible values by utilizing the brain capabilities of the Cyrus Cingulatus section. Cooperation and friendship can be used as materials to improve student character education, and empathy attitudes by working together in several matters with other students.

Fourth, Basal Ganglia

Just like the metaphor of a motor or driver, the Basal Ganglia section is an aspect of mature consideration and decision and will be executed with human actions or movements. Systematic instruments in the Basal Ganglia include pautamen, global polidus, necleus subthalamicus, nucleus caudatur, nucleus accumbens. With a work pattern waiting for structured instructions from the relationship and coordination of the cerebral cortex movement center or execution and initiation values with cerebellum instructions (part of the small brain) with aspects of all movements/actions[29]. The Basal

---

[24] Putri Mahanani dkk., "THE 5 TH INTERNATIONAL CONFERENCE ON EDUCATIONAL RESEARCH AND PRACTICE (ICERP) 2019 EDUCATING THE DIGITAL SOCIETY: INTEGRATING HUMANISTIC AND SCIENTIFIC VALUES Analysis of the Love of the Country Character Education in Indonesia and Australia," 2019, 23–32.

[25] Abd. Mukhid, "Konsep Pendidikan Karakter Dalam Al-Qur'an," *jurnal Nuansa* 13, no. 2 (2016): 1–17.

[26] Muhammad Rivki dkk., "Urgency of Islamic Religious Education Teachers in Character Building for Students in Junior High Schools," *Al-Hayat: Journal of Islamic Education* 3, no. 2 (2019): 178–99.

[27] Usan dan Suyadi, "Implementasi Pendidikan Karakter Di Sekolah Dasar: Upaya Pendidik Membentuk Karakter Siswa Dalam Mempersiapkan Generasi Emas 2045 Berbasis Neurosains."

[28] Suyadi dan Albar, "Ngrowot Tradition in Neuroscience Study in Luqmaniyah Islamic Boarding School, Yogyakarta."

[29] Usan dan Suyadi, "Implementasi Pendidikan Karakter Di Sekolah Dasar: Upaya Pendidik Membentuk Karakter Siswa Dalam Mempersiapkan Generasi Emas 2045 Berbasis Neurosains."

Ganglia is a central cooling system that creates calm, minimizes the emergence of conflict, provides mediation and consideration of both sides, detects the emergence of pleasure and controls movement.[30]. In the context of character education, on this basis, the learning activities of students will increase in terms of motoric movements. As with students being taught how to pray and practice them directly and how to practice the procedures for ablution properly and correctly.[31].

Fifth, Temporal Lobe

Temporal Lobe contains elements of primary auditory, visual cortex, limbic cortex, second auditory, temporal lobe and tends not to have a single function in physiological studies. The main task in this aspect is to maintain the conception of perception, sound and the ability to respond to mystical activity in its growth. The advanced system in this aspect is to regulate memory, speech interaction of language, understanding in hearing, aspects of the development of social traces and human spiritual abilities.[32]. In character education must be able to utilize and grow these values into the application of creative and imaginative attitudes, social care, responsible for the activities/work carried out, and foster religious attitudes both socially and individually. And especially with this education, teachers in learning are expected to be able to maximize the potential that students have aspects of social care.

Sixth, Cerebellum

In the brain there is something called the occipital lobe which functions for the distribution and visual process or sense of sight in the human body. And the cerebellum is the part of the brain located under this lobe and is folded and located on the upper back of the brain stem.[33]. The function of the cerebellum is to maintain stability and control eye movement, with a working mode of stabilizing and coordinating muscle tone movements with muscles that are responsible for planning the initiation of motor movements of the cortex that stores procedural memories.[34]. In character education, these abilities and potential are as much as possible to be pursued by providing understanding and instilling values and work ethics and being responsible, implementing education or education. So that all models and brain potential must be optimally accustomed to the suitability of the movement of the stimulant response as humans or students.

---

[30] Vimala H Sethy, "Central Cholinergic System," *Indian Journal of Pharmacology* 4, no. 4 (1972): 190–202.

[31] Pahron Setiawan, Delmus Puneri Salim, dan Muh. Idris, "Perilaku Keagamaan Siswa Muslim di SMPN 1 dan SMPN 2 Airmadidi (Studi Kasus Siswa Muslim Mayoritas dan Minoritas di Sekolah Negeri)," *Journal of Islamic Education Policy* 5, no. 1 (2020): 26.

[32] Suyadi dan Albar, "Ngrowot Tradition in Neuroscience Study in Luqmaniyah Islamic Boarding School, Yogyakarta."

[33] Lauralee Sherwood, *Fisiologi Manusia Dari Sel ke Sistem* (Jakarta: Penerbit Buku Kedokteran EGC, 2009).

[34] Lauralee Sherwood.

And the point in character education is how educators are able and competent with their efforts to develop the potential of their students. Moreover, we will touch on religious-based character education, relying on teachers to be able to create and innovate, maximize their intelligence in creativity, and stimulate the growth of students' abilities to be able to instill these values in everyday life at school or in the home environment. With various breakthroughs in understanding and comprehending character building in students, it is hoped that these steps can be optimized with their respective functions as a network system to give birth to and spark a civilized and competitive human life with manners in thinking.

RESEARCH METHODOLOGY

In this case, this research is to coordinate qualitative research by trying to carry out a case study approach.[35] [36] [37]. This study focuses on case studies that have correlations with various interactive studies and interconnections on the perceptions of a number of people. This perception emphasizes the assumption that cultural values and norms that develop will always provide flexibility values to social situations.[38] [39]. The method or technique of data collection in this study is an interview with the main and principal informant from the research object which is the data of the perpetrators of the class action.[40]. Interviews or interviews are conducted in an open and structured manner, in depth and carried out by adapting the informant to a conducive atmosphere and conditions.[41]. Interviews were conducted using a gradual model and steps, guided by the results and efforts of teachers or educators in developing and building the character of students so that they have a religious character based on

---

[35] Siti Masyruhah Adi Kuswandi, Rosichin Mansur, "Upaya Guru Pendidikan Agama Islam Dalam Menanamkan Nilai Karakter Kepedulian Sosial Pada Siswa SMA Negeri 2 Malang," *VICRATINA: Jurnal Pendidikan Islam* 7, no. 4 (2022): 18.

[36] Muh Fitrah, *Metodologi Penelitian: Penelitian Kualitatif, Tindakan Kelas & Studi Kasus* (Sukabumi: CV Jejak (Jejak Publisher), 2018).

[37] Suwandi Suwandi dan Hendro Widodo, "Penerapan Kurikulum PAI terhadap Pembentukan Karakter Islami Siswa MTs Al-Khairiyah Pulokencana," *Ideas: Jurnal Pendidikan, Sosial, dan Budaya* 7, no. 3 (2021): 127, https://doi.org/10.32884/ideas.v7i3.400.

[38] Riskha Ramanda, Zarina Akbar, dan R. A. Murti Kusuma Wirasti, "Studi Kepustakaan Mengenai Landasan Teori Body Image Bagi Perkembangan Remaja," *JURNAL EDUKASI: Jurnal Bimbingan Konseling* 5, no. 2 (2019): 121, https://doi.org/10.22373/je.v5i2.5019.

[39] Sulastri Sulastri dan Betty Mauli Rosa Bustan, "Relevansi Filsafat Ilmu pada pembelajaran Pendidikan Islam berbasis Higher Order Of Thinking Skill," *Ta'dibuna: Jurnal Pendidikan Islam* 11, no. 1 (2022): 100, https://doi.org/10.32832/tadibuna.v11i1.6614.

[40] et al Pahleviannur, Muhammad Rizal, *Penelitian Tindakan Kelas* (Sukoharjo: Pradina Pustaka, 2022).

[41] V. Wiratna Sujarweni, *Metodelogi Penelitian* (Yogyakarta: Pustaka Baru Perss, 2014).

neuroscience.[42]. This research focuses on exposition and analytical analysis.[43]. By presenting data in the form of facts so that in terms of analysis the data can be a characteristic and have a connection with one another. And analytical by trying to provide critical thinking in the form of analyzing information related to research and narrating it in logical thinking arguments with the end of a conclusion.

RESULTS AND DISCUSSION

The thing that will always be a big question mark in the world of education in the modern era and globalization today, what is the urgency for education with the concept of character building? Because the assumption and response so far are whether character education at every level of education in Indonesia has been implemented and carried out systematically, and or even whether the students receive character education at their schools? If we both look at the analysis of the SISDIKNAS with the contents of Law No. 20 of 2003, it states that education on a national scale and its function is to give birth to develop and form character and moral abilities for national civilization[44]. This means that there are hopes and ideals in building this Indonesian civilization in accordance with the manners and religion of every religious adherent living in this country. The main goal is to develop the potential of students who are religious, faithful and obedient to the rules of religion and the nation is something that is a dream[45]. Added to that are the various perfections and independence of civilization in giving birth to generations or human movements that have implications for widespread human development. Character education aims to build people who are moral, capable, creative, empathetic, have good knowledge, are democratic and responsible.[46] [47].

---

[42] Fandi Rosi Sarwo Edi, *Teori Wawancara Psikodignostik* (Tegalrejo-Yogyakarta: Penerbit LeutikaPrio, 2016).

[43] Hidayah Irava Natasya Putri, "Kritik Sosial Keagamaan di Indonesia pada Film '?'(Tanda Tanya) Karya Hanung Bramantyo Tinjauan Sosiologi Agama" (UIN Sunan Gunung Djati Bandung, 2023).

[44] F Jannah, "Urgensi Pendidikan Karakter Di Sekolah," *Journal.Stitaf.Ac.Id* 05, no. 01 (2014): 167–84.

[45] Rahmat Hidayat dan Candra Wijaya, *Ilmu Pendidikan Islam: Menuntun Arah Pendidikan Islam di Indonesia* (Medan: Lembaga Peduli Pengembangan Pendidikan Indonesia, 2016).

[46] Mohammad Kosim, "Urgensi Pendidikan Karakter," *Karsa: Journal of Social and Islamic Culture*, 2012, 84–92, https://doi.org/10.19105/karsa.v19i1.78.

[47] et al Syahraini Tambak, "Profesionalisme Guru Madrasah: Internalisasi Nilai Islam dalam Mengembangkan Akhlak Aktual Siswa," *Jurnal Pendidikan Agama Islam Al-Thariq, Universitas Islam Riau* 5, no. 2 (2020): 79–96.
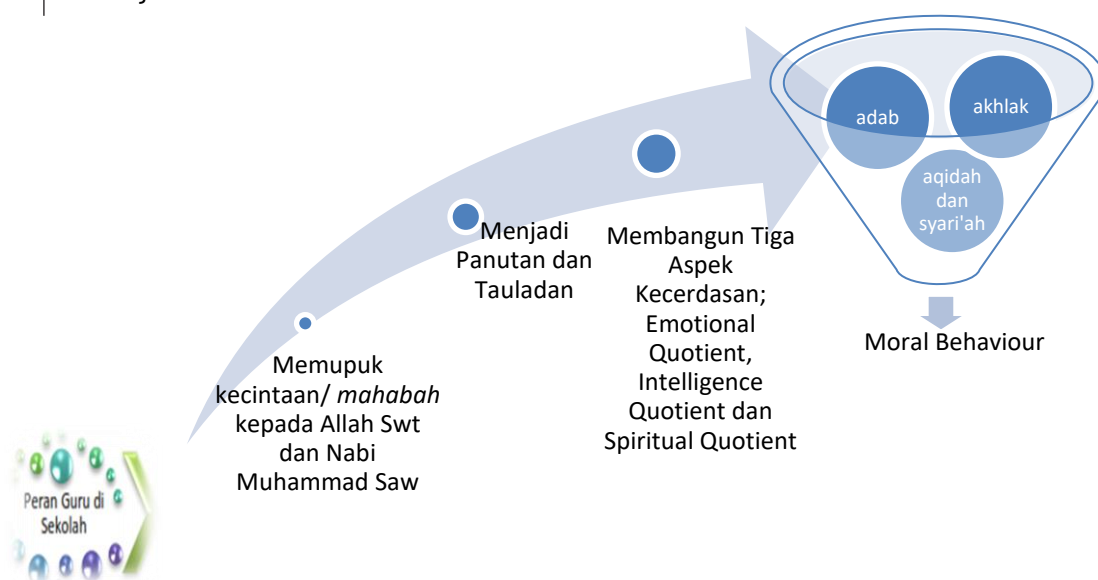
It has become common recognition and a fact of the results shown by the changes and transformation of the behavior of society in the modern disruption era today. More specifically in the world of education which is students or school students. Like many phenomena or cases of harassment and disrespect for parents and respect for teachers, the decline in the value of school student discipline and the low enthusiasm for learning and achievement caused by the low character education of students[48] [49]. And it is exacerbated again by the stigma that still exists in society, some of whom think that education is only a process of obtaining legal recognition of skills as a requirement for entering a job.[50] [51].

Therefore, character education is indeed felt to be a commodity or action that needs to be prioritized and attempted by all groups. Not only in the world of education, but religious circles are one of the pioneers for planting and building character building.[52] [53].For this reason, in building character education, it is necessary to get used to implementing sustainability and focus on developing natural neurotic

---

[48] Aiman Faiz, "Tinjauan Analisis Kritis Terhadap Faktor Penghambat Pendidikan Karakter Di Indonesia," *Jurnal Penelitian Bidang Pendidikan* 27, no. 2 (2021): 82, https://doi.org/10.24114/jpbp.v27i2.24205.

[49] Syahraini Tambak dkk., "Faith, Identity Processes and Science-Based Project Learning Methods for Madrasah Teachers," *AL-ISHLAH: Jurnal Pendidikan* 14, no. 1 (2022): 203–16, https://doi.org/10.35445/alishlah.v14i1.1184.

[50] Aiman Faiz dan Imas Kurniawaty, "Konsep Merdeka Belajar Pendidikan Indonesia Dalam Perspektif Filsafat Progresivisme," *Konstruktivisme : Jurnal Pendidikan dan Pembelajaran* 12, no. 2 (2020): 155–64, https://doi.org/10.35457/konstruk.v12i2.973.

[51] Syahraini Tambak dkk., "How Does Learner-Centered Education Affect Madrasah Teachers' Pedagogic Competence?," *Journal of Education Research and Evaluation* 6, no. 2 (2022): 358–66, https://doi.org/10.23887/jere.v6i2.42119.

[52] Rivki dkk., "Urgency of Islamic Religious Education Teachers in Character Building for Students in Junior High Schools."

[53] Nur Aisyah dan Suratno, "The Cultivation Of The Religious Values As Character Forming Students," *EDUTEC : Journal of Education And Technology* 3, no. 1 (2019): 12–19, https://doi.org/10.29062/edu.v3i1.2.

skills first.[54]. Instilling power in the mediator, in this case the teacher's power, to be able to strive for character education through the teacher's psychological potential and religious power.[55]. For this reason, if we want to see the civilization of a civilization, then character identity becomes the main thing and superior quality of life.

This researcher attempts to describe and illustrate that there is a central role where the teacher's contribution to the school is to participate in instilling the formation of student character. Through an interview model to obtain valid data from PAI teachers at MTs Hidayatul Mubtadi'in South Lampung. The efforts and steps taken include several that describe the development of neuroscience-based religious character in students, namely.

Cultivating Love for Allah SWT and His Prophet

This effort is a step taken by teachers to foster and introduce the values of love for Allah and the Prophet. The religious basis is a pattern and method of educating students to always be obedient and pious by applying Islamic values as noble teachings. Because these noble values will later become guidelines for the implementation of a concept of social life. Teachers teach various definitions and understandings of the importance of character values for their students on the basis and provision of an understanding of the application of religious values. Religion is used as a basis for teachers in building the character of students who are pious, can have a calm soul, a broad outlook, a strong personality and provide benefits to the environment.[56]. Efforts made in introducing the religious basis of instilling character values of love for Allah and His Prophet are by teaching in depth about monotheism or belief. This is used as a foundation for students to understand and comprehend that love for Allah SWT and His Prophet is an obligation.[57].

One of the teacher's efforts is to describe the power of Allah SWT, which is inspired in the most sacred human anatomy, namely the human head nerves. In developing the character of religious students based on neuroscience by explaining its functions, delivering students' understanding that the power of Allah SWT over His complex creation, a brain is a sign of Allah's power over creatures.[58]. In the concept of character education, the optical network system in the brain will represent how this network is able to optimize the work of the prefrontal cortex to instill values and norms

---

[54] Aiman Faiz, "Program Pembiasaan Berbasis Pendidikan Karakter Di Sekolah," *Jurnal PGSD* 5, no. 2 (2019): 1–10, https://doi.org/10.32534/jps.v5i2.741.

[55] Desi Sukenti, Syahraini Tambak, dan Charlina, "Developing indonesian language learning assessments: Strengthening the personal competence and islamic psychosocial of teachers," *International Journal of Evaluation and Research in Education* 9, no. 4 (2020): 1079–87, https://doi.org/10.11591/ijere.v9i4.20677.

[56] D. Sukenti S. Tambak, M.Y Ahmad, "Strengthening Emotional Intelligence in Developing the Madrasah Teachers' Professionalism," *Akademika: Journal of Southeast Asia Social Science and Humanities* 90, no. 2 (2020): 27–38.

[57] Tambak dkk., "Faith, Identity Processes and Science-Based Project Learning Methods for Madrasah Teachers."

[58] Ovi Soviya Citra Trisna Dewi, Nur Wulandari Fitri, "Neurosains dalam Pembelajaran Agama Islam," *Ta'allum: Jurnal Pendidikan Islam* 6, no. 2 (2018): 259–80.

of children's character to be more creative and foster curiosity.[59] [60] [61]. On this basis, it is expected that character education that is intended for the development of students can maximize all aspects of it up to motor applications. Motor in this case is the application of implementing activities such as prayer, ablution, other good deeds and trying to apply truth and honesty in the social life of the school.

Providing an Example of Kindness or a Role Model

The hope, desire and dream of every parent and teacher is to have a civilized child or student, behave with morals and grow in morality and intellect. So, in this case, it will share roles in trying to make children or students have a religious character. Parents educate and teach their children at home with various things that can make the child pious and socially competent. Teachers at school become role models and role models in the world of education for students[62] [63]. So, the formula is for the world of educators is to provide an example by starting from oneself who is pious, both in the school environment and in general society. Teachers who are the orientation of knowledge transfer and role models for students are also required to make themselves figures who can carry out the transfer of value.[64].And finally, teachers are also considered necessary to provide guidance to students in selecting an environment and even direction of friends who are conducive to the growth and development of children. And motivation as a teacher is not only in intellectuality but emotionally, teachers have a role as a guide or a good example for their students. So that in the minds of students, teachers are parent figures at school who identify with their characters and are examples for their students.

In the specific brain function of the cingulate gyrus for character education is to reconstruct the rules related to behavior with special emotional influences that are flexible. So that based on the description, Islamic Religious Education teachers can foster a sense of friendship and cooperation among students/school students. Having sensitivity in helping others, so that character education is more focused on the student's value system that can be manifested in the form of civilized actions and steps. There is another brain system, namely the limbic system which has the function of adjusting the concept of honesty, empathy, tolerance and environmental care, independence, discipline and tolerance and has the priority of love for the homeland. So for these parts and functions in neuroscience, it is hoped that character education

---

[59] Kosim, "Urgensi Pendidikan Karakter."

[60] Faiz, "Tinjauan Analisis Kritis Terhadap Faktor Penghambat Pendidikan Karakter Di Indonesia."

[61] Usan dan Suyadi, "Implementasi Pendidikan Karakter Di Sekolah Dasar: Upaya Pendidik Membentuk Karakter Siswa Dalam Mempersiapkan Generasi Emas 2045 Berbasis Neurosains."

[62] Wen Bin Chiou Paichi Pat Shein, "Teachers as Role Models for Students' Learning Styles," *Social Behavior and Personality: an international journal* 39, no. 8 (2011): 1097–1104.

[63] Angela Lumpkin, "Teachers as Role Models Teaching Character and Moral Virtues," *Journal of Physical Education, Recreation & Dance* 79, no. 2 (2008): 45–50.

[64] Antonello Zanfei Federica Saliola, "Multinational Firms, Global Value Chains and the Organization of Knowledge Transfer," *Research policy* 38, no. 2 (2009): 369–81.

will penetrate the deepest depths of students' sensitivity to life. Primarily character education in building an honest attitude, empathy and social concern, implementing education and motivation, and students are taught how to habituate a regular and moral lifestyle. And primarily religious neuroscience by forming healthy and socially pious individuals with various applications of worship of Allah SWT such as prayer, zakat, fasting, reading the Koran, praying all the time, and developing superior personality for all school students.

As an effort to produce a strong generation, educators are very aware that they must provide explanations and explain that students must instill in themselves an attitude of hard work and responsibility. Educating with the ability and optimizing brain function, especially for students in the school area. Need to optimally actualize and effectiveness related to the role of the brain in the formation of religious character. With the values of education that are mandatory to be more creative and innovative, so that the birth of progress in thinking for students[65]. Thus, when all patterns and models have been applied, the great hope is that teachers can maximize the role of the brain network to build a social system.

Building Emotional Intelligence

Emotional intelligence is a series of character intelligence that is very much needed for the world of education, especially for students or learners. The influence of the environment is very large in forming this intelligence pattern, and moreover this intelligence is also influenced by the existence of flexible or unstable currents and transformations that always occur. For that it is very important if we want to say that teachers have an important position in influencing. The influence of teachers on the development and improvement of students' emotional intelligence becomes an important value so that it has a primary function. EQ management skills are not the opposite of IQ skills, but both are dynamic and mutually reinforcing towards the best. For that, PAI teachers in this, in addition to conveying Islamic messages and contents, teachers must also be capable of building emotional awareness.

Emotional intelligence is a series of student abilities in recognizing, managing and understanding how and what methods to express emotions wisely and effectively. Where in the concept and foundation is a self-awareness system that can identify one's own emotions and sensitivity to social awareness. Emotional intelligence also includes how individual students can handle and manage their stress so that it has an impact on controlling negative emotions that will arise. Furthermore, students in terms of emotional intelligence are how they can handle communication conflicts well and try

---

[65] Citra Trisna Dewi, Nur Wulandari Fitri, "Neurosains dalam Pembelajaran Agama Islam."

to solve problems or conflicts constructively, especially also building healthy relationships between various components of social life in schools and society.[66].

Furthermore, each student's ability and skill in building and developing skills for critical and creative thinking is an effort at intelligence that is driven by emotional aspects.[67]. Understanding and analyzing problems from various perspectives, the ability to identify and find solutions, implementing innovative and independent actions in combining communication collectively. For today, one of the benefits of emotional intelligence for students or learners is that students can align or contribute together with groups in managing conflicts, establishing harmonious and productive cooperative relationships in their efforts to become dynamic school socializers.

After that, teachers need to build emotional awareness with the first step being to recognize emotions and their management, convey education in the form of motivation and teaching about goodness. So, the value of needs that drives the goal of achieving character education is to form a good personality and good character. By building students to have character, we will be able to provide complex communication with coordination with parents, teachers, friends and the community.[68].

In the formation of student character, teachers need to realize that they must give a lot of special attention to character education to their students. Character formation cannot be done in the blink of an eye, not only giving advice, orders or instructions. Character formation requires an example or role model, habituation of patience and repetition. In one of the Indonesian Heritage Foundation institutions, there are three stages of character formation[69], namely: first, Moral Knowing: giving students a good understanding of the meaning of goodness. This effort is made to find out what good behavior is, what good behavior is for and the benefits of good behavior, second, Moral Feeling: building a love of better behavior in students which will be a source of energy for good behavior[70] [71]. Creating character is understanding how to love good behavior to students. Third, Moral Action: providing an understanding of what morals are that become real actions. This moral action is the output of the two previous stages that are carried out repeatedly to become moral behavior.[72].

---

[66] Wahyu Puji Lestari dan Dian Ratnaningtyas Afifah, "Pengaruh Self Efficacy Dan Kecerdasan Emosi Terhadap Motivasi Berprestasi Siswa Smk Pgri 1 Madiun," *Counsellia: Jurnal Bimbingan dan Konseling* 4, no. 2 (2016), https://doi.org/10.25273/counsellia.v4i2.263.

[67] Fahru Riza dan Yoto Yoto, "Membangun Kecerdasan Emosional Siswa SMK untuk Menjawab Tantangan Industri Modern," *Briliant: Jurnal Riset dan Konseptual* 8, no. 4 (2023): 940, https://doi.org/10.28926/briliant.v8i4.1643.

[68] Ely Manizar HM, "Mengelola kecerdasan emosi," *Tadbir* II, no. 2 (2016): 1–16.

[69] Niya Yuliana, M. Dahlan R, dan Muhammad Fahri, "Model Pendidikan Holistik Berbasis Karakter Di Sekolah Karakter Indonesia Heritage Foundation," *EduHumaniora | Jurnal Pendidikan Dasar Kampus Cibiru* 12, no. 1 (2020): 15–24, https://doi.org/10.17509/eh.v12i1.15872.

[70] Patrick Colm Hogan, *Literature and Moral Feeling* (Cambridge: University Press, 2022).

[71] Allan Gibbard, *Moral Feelings and Moral Concepts* (USA: Oxford studies in metaethics, 2006).

[72] Umi Anugerah Izzati dkk., "Character education: Gender differences in moral knowing, moral feeling, and moral action in elementary schools in Indonesia," *Journal for the Education of Gifted Young Scientists* 7, no. 3 (2019): 547–56, https://doi.org/10.17478/jegys.597765.

This means that the character education models applied in the school are character-based holistic education models (PHBK), which is a philosophical study in the world of education.[73]. Where in this concept it is believed that every human being can become a person of character, intelligent, creative, a true learner and can find their own identity, find the meaning and purpose of their life.[74]. With both forms of teaching, it is felt that the pattern and systematization of character education can also be emulated and adopted so that the steps are first integrating subjects and learning process activities, second specifically through the character pillar flow pattern that can be done before learning begins around 15-20 minutes. With the analysis that this opportunity has a large opportunity, because there is no appropriate education model in the application of character education. So that this model can be selected and applied optimally to shape the character of children or students. However, we also need to take preventive steps in neutralizing the challenges that will be faced in the future with each parent certainly having their own parenting model. This means that the child's character will be difficult to form if it is not in line with parental care and school[75].

This also needs to be considered by every parent, that when he entrusts his child's education to school, he must also play a role as a teacher at home. Because many parents entrust their child's education to the school with full trust. And they forget the nature of parents, in Islam parents are actually the first education or madrasah for children or students and especially a mother. However, there is one thing that needs to be considered by each parent, don't let the many activities outside with their work and interests, they run out of space and time to carry out their obligations to educate children[76].

So, seeing and being seen as urgent with the concept of character education, the government as a policy maker has a breakthrough to launch the program and desire to build a civilized nation. And seeing this phenomenon, the central government through the Ministry of Education and Culture has issued regulations on the importance of character education by issuing the Education Unit Level Curriculum (KTSP) policy to the 2013 Curriculum[77]. According to the government, the previous curriculum was considered too focused or emphasized on cognitive aspects only. In this case, students were too burdened with subject assignments, so they tended not to form students with character. Therefore, the implementation of Curriculum 13 is a

---

[73] Sutarman Sutarman dkk., "Implementation of character based integrated holistic education in early childhood education," *International journal of health sciences*, no. July (2022): 5405–19, https://doi.org/10.53730/ijhs.v6ns4.10923.

[74] M. Muslich, *Pendidikan Karakter: Menjawab Tantangan Krisis Multidimensional* (Jakarta: Bumi Aksara, 2011).

[75] R. Megawangi, *Pendidikan Karakter: Solusi Yang Tepat Untuk Membangun Bangsa* (Depok: Indonesia Heritage Foundation, 2016).

[76] Ajri Faujiah, Ahmad Tafsir, dan Sumadi Sumadi, "Pengembangan Karakter Anak di Indonesia Heritage Foundation (IHF) Depok," *Jurnal Penelitian Pendidikan Islam* 6, no. 2 (2018): 163, https://doi.org/10.36667/jppi.v6i2.294.

[77] Rosiddin Harahap, "Pokok Bahasan Pendidikan Agama Islam Di Madrasah: Perbandingan Kurikulum Tingkat Satuan (Ktsp) Dan Kurikulum 2013 (K-13)," *Studi Multidisipliner: Jurnal Kajian Keislaman* 4, no. 2 (2017): 109–26, https://doi.org/10.24952/multidisipliner.v4i2.931.

synergy between the government, educational units, teachers and students. In this case, the curriculum must also be adjusted to the goals of national education and according to the conditions of the times or it can be said that the curriculum must not be biased by the phenomena that occur in society.

CONCLUSION

A study that discusses the role of Islamic Religious Education teachers in building Islamic character in students through a neuroscience perspective with a focus on Islamic religious education. This study highlights how teachers can become agents of change by integrating neuroscience-based education to shape the character of students who are religiously obedient. Using a case study approach, this study found that Islamic Religious Education (PAI) teachers play an important role in teaching religious values, including by teaching love for Allah SWT and the Prophet Muhammad SAW, providing good examples, and building students' emotional intelligence. Islamic Religious Education emphasizes in the management of neuroscience the importance of a teacher's role as a role model to demonstrate and apply Islamic values, which contribute to the formation of students' character who are not only well-behaved, but also able to adapt in various social conditions. The case approach to character education focuses on the interaction between teachers and students in the context of Islamic religious education. This study provides a comprehensive overview of how neuroscience can be applied in character education, by highlighting brain functions such as the prefrontal cortex and limbic system that are related to the development of students' emotional and spiritual intelligence. This approach not only discusses neuroscience theory but also its application in the context of Islamic education, thus providing practical insight for teachers in implementing character education in schools. And character education is an education with a holistic view related to the importance of neuroscience-based character education in preparing a generation with Islamic morals and able to face social challenges in the future.

BIBLIOGRAPHY

Adi Kuswandi, Rosichin Mansur, Siti Masyruhah. "Upaya Guru Pendidikan Agama Islam Dalam Menanamkan Nilai Karakter Kepedulian Sosial Pada Siswa SMA Negeri 2 Malang." *VICRATINA: Jurnal Pendidikan Islam* 7, no. 4 (2022): 18.

Allan Gibbard. *Moral Feelings and Moral Concepts*. USA: Oxford studies in metaethics, 2006.

Anderson, V. "Executive Function in Children: Introduction." *Child Neuropsychology* 8, no. 2 (2002): 69–70.

Angela Lumpkin. "Teachers as Role Models Teaching Character and Moral Virtues." *Journal of Physical Education, Recreation & Dance* 79, no. 2 (2008): 45–50.

Arif Rohman, Lusila Andriani Purwastuti. *Epistemologi dan Logika: Filsafat untuk Pengembangan Pendidikan*. Yogyakarta: CV. Aswaja Pressindo, 2014.

Arini Dina Ismiati, Arini Dina Ismiati, Ma'rifatul Ainiyah Ma'rifatul Ainiyah, dan Rosydina Robi'aqolbi Rosydina Robi'aqolbi. "Perbedaan Cara Pengambilan Keputusan antara Laki-laki dan Perempuan Menurut Al-Qur'an." *Al-I'jaz : Jurnal Studi Al-Qur'an, Falsafah dan Keislaman* 5, no. 2 (2024): 76–93. https://doi.org/10.53563/ai.v5i2.104.

Astri Novia. *Melatih Otak Setajam Silet*. Yogyakarta: Media Pressindo, 2010.

Badry, Intan Mayang Sahni, dan Rini Rahman. "Upaya Guru Pendidikan Agama Islam dalam Menanamkan Nilai Karakter Religius." *An-Nuha* 1, no. 4 (2021): 573–83. https://doi.org/10.24036/annuha.v1i4.135.

Citra Trisna Dewi, Nur Wulandari Fitri, Ovi Soviya. "Neurosains dalam Pembelajaran Agama Islam." *Ta'allum: Jurnal Pendidikan Islam* 6, no. 2 (2018): 259–80.

Cl Pattinama. "Remaja dan Permasalahannya dalam Tinjauan Psikologis." *OSFPreprints* 3, no. 2 (2015).

Clancy Blair. "Educating Executive Function." *Wiley Interdisciplinary Reviews: Cognitive Science* 8, no. 2 (2017): 1403.

Faiz, Aiman. "Program Pembiasaan Berbasis Pendidikan Karakter Di Sekolah." *Jurnal PGSD* 5, no. 2 (2019): 1–10. https://doi.org/10.32534/jps.v5i2.741.

———. "Tinjauan Analisis Kritis Terhadap Faktor Penghambat Pendidikan Karakter Di Indonesia." *Jurnal Penelitian Bidang Pendidikan* 27, no. 2 (2021): 82. https://doi.org/10.24114/jpbp.v27i2.24205.

Faiz, Aiman, dan Imas Kurniawaty. "Konsep Merdeka Belajar Pendidikan Indonesia Dalam Perspektif Filsafat Progresivisme." *Konstruktivisme : Jurnal Pendidikan dan Pembelajaran* 12, no. 2 (2020): 155–64. https://doi.org/10.35457/konstruk.v12i2.973.

Fandi Rosi Sarwo Edi. *Teori Wawancara Psikodignostik*. Tegalrejo-Yogyakarta: Penerbit LeutikaPrio, 2016.

Faujiah, Ajri, Ahmad Tafsir, dan Sumadi Sumadi. "Pengembangan Karakter Anak di Indonesia Heritage Foundation (IHF) Depok." *Jurnal Penelitian Pendidikan Islam* 6, no. 2 (2018): 163. https://doi.org/10.36667/jppi.v6i2.294.

Federica Saliola, Antonello Zanfei. "Multinational Firms, Global Value Chains and the Organization of Knowledge Transfer." *Research policy* 38, no. 2 (2009): 369–81.

Haluty, Djaelany. "Islam Dan Manajemen Sumber Daya Manusia yang Berkualitas." *Jurnal Irfani*, 2014, Vol.10, No. 1, hal 63–74.

Harahap, Rosiddin. "Pokok Bahasan Pendidikan Agama Islam Di Madrasah: Perbandingan Kurikulum Tingkat Satuan (Ktsp) Dan Kurikulum 2013 (K-13)." *Studi Multidisipliner: Jurnal Kajian Keislaman* 4, no. 2 (2017): 109–26. https://doi.org/10.24952/multidisipliner.v4i2.931.

Hidayah Irava Natasya Putri. "Kritik Sosial Keagamaan di Indonesia pada Film '?'(Tanda Tanya) Karya Hanung Bramantyo Tinjauan Sosiologi Agama." UIN Sunan Gunung Djati Bandung, 2023.

HM, Ely Manizar. "Mengelola kecerdasan emosi." *Tadbir* II, no. 2 (2016): 1–16.

Izzati, Umi Anugerah, Bachtiar Syaiful Bachri, M. Sahid, dan Dian Eka Indriani. "Character education: Gender differences in moral knowing, moral feeling, and moral action in elementary schools in Indonesia." *Journal for the Education of Gifted Young Scientists* 7, no. 3 (2019): 547–56. https://doi.org/10.17478/jegys.597765.

Jannah, F. "Urgensi Pendidikan Karakter Di Sekolah." *Journal.Stitaf.Ac.Id* 05, no. 01 (2014): 167–84.

Kholifah, Wahyu Titis. "Research & Learning in Primary Education Upaya Guru Mengembangkan Karakter Peserta Didik Sekolah Dasar Melalui Pendidikan Ramah Anak." *Jurnal Pendidikan dan Konseling* 2, no. 1 (2020): 115–20.

Kosim, Mohammad. "Urgensi Pendidikan Karakter." *Karsa: Journal of Social and Islamic Culture*, 2012, 84–92. https://doi.org/10.19105/karsa.v19i1.78.

Lauralee Sherwood. *Fisiologi Manusia Dari Sel ke Sistem*. Jakarta: Penerbit Buku Kedokteran EGC, 2009.

Lestari, Wahyu Puji, dan Dian Ratnaningtyas Afifah. "Pengaruh Self Efficacy Dan Kecerdasan Emosi Terhadap Motivasi Berprestasi Siswa Smk Pgri 1 Madiun." *Counsellia: Jurnal Bimbingan dan Konseling* 4, no. 2 (2016). https://doi.org/10.25273/counsellia.v4i2.263.

Luh Kompiang Sari. "Pendidikan Karakter Perspektif dalam Pembangunan dan Pembentukan Moral Peserta Didik." *Widyacarya* 4, no. 1 (2020).

M. Muslich. *Pendidikan Karakter: Menjawab Tantangan Krisis Multidimensional*. Jakarta: Bumi Aksara, 2011.

Mahanani, Putri, Adhimas Wahyu, Agung Wijaya, dan Eny Nuraisyah. "THE 5 TH INTERNATIONAL CONFERENCE ON EDUCATIONAL RESEARCH AND PRACTICE (ICERP) 2019 EDUCATING THE DIGITAL SOCIETY: INTEGRATING HUMANISTIC AND SCIENTIFIC VALUES Analysis of the Love of the Country Character Education in Indonesia and Australia," 2019, 23–32.

Mardiah, Mardiah, Syaifuddin Sabda, dan Ani Cahyadi. "Analisis Relevansi Neurosains dengan Pembelajaran dan Kesehatan Spiritual." *Journal on Education* 4, no. 4 (2022): 1489–1510. https://doi.org/10.31004/joe.v5i4.2197.

Muh Fitrah. *Metodologi Penelitian: Penelitian Kualitatif, Tindakan Kelas & Studi Kasus*. Sukabumi: CV Jejak (Jejak Publisher), 2018.

Mukhid, Abd. "Konsep Pendidikan Karakter Dalam Al-Qur'an." *jurnal Nuansa* 13, no. 2 (2016): 1–17.

Nasrullah, Nasrullah. "Upaya Guru Pendidikan Agama Islam Dalam Membentuk Karakter Siswa (Studi Kasus Di Sma Negeri 1 Kota Bima)." *JIE (Journal of Islamic Education)* 3, no. 2 (2019): 163. https://doi.org/10.29062/jie.v3i2.99.

Nur Aisyah, dan Suratno. "The Cultivation Of The Religious Values As Character Forming Students." *EDUTEC : Journal of Education And Technology* 3, no. 1 (2019): 12–19. https://doi.org/10.29062/edu.v3i1.2.

Pahleviannur, Muhammad Rizal, et al. *Penelitian Tindakan Kelas*. Sukoharjo: Pradina Pustaka, 2022.

Paichi Pat Shein, Wen Bin Chiou. "Teachers as Role Models for Students' Learning Styles." *Social Behavior and Personality: an international journal* 39, no. 8 (2011): 1097–1104.

Patrick Colm Hogan. *Literature and Moral Feeling*. Cembridge: University Press, 2022.

R. Megawangi. *Pendidikan Karakter: Solusi Yang Tepat Untuk Membangun Bangsa*. Depok: Indonesia Heritage Foundation, 2016.

Rahmah Hastuti. *Psikologi Remaja*. Yogyakarta: Andi, 2021.

Rahmat Hidayat dan Candra Wijaya. *Ilmu Pendidikan Islam: Menuntun Arah Pendidikan Islam di Indonesia*. Medan: Lembaga Peduli Pengembangan Pendidikan Indonesia, 2016.

Ramanda, Riskha, Zarina Akbar, dan R. A. Murti Kusuma Wirasti. "Studi Kepustakaan Mengenai Landasan Teori Body Image Bagi Perkembangan Remaja." *JURNAL EDUKASI: Jurnal Bimbingan Konseling* 5, no. 2 (2019): 121. https://doi.org/10.22373/je.v5i2.5019.

Rivki, Muhammad, Adam Mukharil Bachtiar, Teknik Informatika, Fakultas Teknik, dan Universitas Komputer Indonesia. "Urgency of Islamic Religious Education Teachers in Character Building for Students in Junior High Schools." *Al-Hayat: Journal of Islamic Education* 3, no. 2 (2019): 178–99.

Riza, Fahru, dan Yoto Yoto. "Membangun Kecerdasan Emosional Siswa SMK untuk Menjawab Tantangan Industri Modern." *Briliant: Jurnal Riset dan Konseptual* 8, no. 4 (2023): 940. https://doi.org/10.28926/briliant.v8i4.1643.

Rizky Asrul Ananda, Mufidatul Inas, dan Agung Setyawan. "Pentingnya Pendidikan Karakter pada anak Sekolah Dasar di Era Digital." *Jurnal Pendidikan, Bahasa dan Budaya* 1, no. 1 (2022): 83–88. https://doi.org/10.55606/jpbb.v1i1.836.

S. Tambak, M.Y Ahmad, D. Sukenti. "Strengthening Emotional Intelligence in Developing the Madrasah Teachers' Professionalism." *Akademika: Journal of Southeast Asia Social Science and Humanities* 90, no. 2 (2020): 27–38.

Sadida, Qaulan, Sarlina K Tunliu, Novia Kartikasari, dan Universitas Gadjah Mada. "STUDI LITERATUR MENGENAI ANAK USIA SEKOLAH DASAR DENGAN ADHD : PERSPEKTIF NEUROPSIKOLOGI ELSE (Elementary School Education," 2024, 2–4.

Setiawan, Pahron, Delmus Puneri Salim, dan Muh. Idris. "Perilaku Keagamaan Siswa Muslim di SMPN 1 dan SMPN 2 Airmadidi (Studi Kasus Siswa Muslim

Mayoritas dan Minoritas di Sekolah Negeri)." *Journal of Islamic Education Policy* 5, no. 1 (2020): 26.

Sholichah, Aas Siti. "Urgensi Pendidikan Karakter Pada Anak Usia Dini Dalam Tinjauan Neurosains." *JECIES: Journal of Early Childhood Islamic Education Study* 1, no. 1 (2020): 01–14. https://doi.org/10.33853/jecies.v1i1.51.

Siregar, Nani Restati. "'Cool' dan 'Hot' Brain Executive Functioning dan Perfomansi Akademik Siswa." *Buletin Psikologi* 26, no. 2 (2018): 97. https://doi.org/10.22146/buletinpsikologi.38817.

Sukenti, Desi, Syahraini Tambak, dan Charlina. "Developing indonesian language learning assessments: Strengthening the personal competence and islamic psychosocial of teachers." *International Journal of Evaluation and Research in Education* 9, no. 4 (2020): 1079–87. https://doi.org/10.11591/ijere.v9i4.20677.

Sulastri, Sulastri, dan Betty Mauli Rosa Bustan. "Relevansi Filsafat Ilmu pada pembelajaran Pendidikan Islam berbasis Higher Order Of Thinking Skill." *Ta'dibuna: Jurnal Pendidikan Islam* 11, no. 1 (2022): 100. https://doi.org/10.32832/tadibuna.v11i1.6614.

Sutarman, Sutarman, Nurhayati Nurhayati, Rahayu Dwi Utami, Idarianty Idarianty, dan Ismail Akzam. "Implementation of character based integrated holistic education in early childhood education." *International journal of health sciences*, no. July (2022): 5405–19. https://doi.org/10.53730/ijhs.v6ns4.10923.

Suwandi, Suwandi, dan Hendro Widodo. "Penerapan Kurikulum PAI terhadap Pembentukan Karakter Islami Siswa MTs Al-Khairiyah Pulokencana." *Ideas: Jurnal Pendidikan, Sosial, dan Budaya* 7, no. 3 (2021): 127. https://doi.org/10.32884/ideas.v7i3.400.

Suyadi, Suyadi, dan Mawi Khusni Albar. "Ngrowot Tradition in Neuroscience Study in Luqmaniyah Islamic Boarding School, Yogyakarta." *IBDA`: Jurnal Kajian Islam dan Budaya* 16, no. 1 (2018): 125–47. https://doi.org/10.24090/ibda.v16i1.1394.

Syahraini Tambak, et al. "Profesionalisme Guru Madrasah: Internalisasi Nilai Islam dalam Mengembangkan Akhlak Aktual Siswa." *Jurnal Pendidikan Agama Islam Al-Thariq, Universitas Islam Riau* 5, no. 2 (2020): 79–96.

Tambak, Syahraini, M. Yusuf Ahmad, Desi Sukenti, dan Ermalinda Siregar. "Faith, Identity Processes and Science-Based Project Learning Methods for Madrasah Teachers." *AL-ISHLAH: Jurnal Pendidikan* 14, no. 1 (2022): 203–16. https://doi.org/10.35445/alishlah.v14i1.1184.

Tambak, Syahraini, Desi Sukenti, Yusuf Hanafi, Rianawati Rianawati, dan Amril Amril. "How Does Learner-Centered Education Affect Madrasah Teachers' Pedagogic Competence?" *Journal of Education Research and Evaluation* 6, no. 2 (2022): 358–66. https://doi.org/10.23887/jere.v6i2.42119.

Usan, Usan, dan Suyadi Suyadi. "Implementasi Pendidikan Karakter Di Sekolah Dasar: Upaya Pendidik Membentuk Karakter Siswa Dalam Mempersiapkan

Generasi Emas 2045 Berbasis Neurosains." *Muallimuna : Jurnal Madrasah Ibtidaiyah* 7, no. 2 (2022): 73. https://doi.org/10.31602/muallimuna.v7i2.6379.

Vimala H Sethy. "Central Cholinergic System." *Indian Journal of Pharmacology* 4, no. 4 (1972): 190–202.

Vina Destiana, Lntan Putri Lestari, M Haris Hanafi, M Sofwan Ghalib, dan Wismanto Wismanto. "Hakikat Manusia (Perspektif Filsafat Pendidikan Islam)." *Jurnal Manajemen dan Pendidikan Agama Islam* 2, no. 1 (2024): 70–87. https://doi.org/10.61132/jmpai.v2i1.61.

Wiratna Sujarweni, V. *Metodelogi Penelitian*. Yogyakarta: Pustaka Baru Perss, 2014.

Yastab, Rezky A., Taufiq Pasiak, dan Sunny Wangko. "Hubungan Kinerja Otak Dan Spiritualitas Manusia Diukur Dengan Menggunakan Indonesia Spiritual Health Assessment Pada Pemuka Agama Di Kabupaten Halmahera Tengah." *Jurnal e-Biomedik* 2, no. 2 (2014): 419–25. https://doi.org/10.35790/ebm.2.2.2014.4700.

Yuliana, Niya, M. Dahlan R, dan Muhammad Fahri. "Model Pendidikan Holistik Berbasis Karakter Di Sekolah Karakter Indonesia Heritage Foundation." *EduHumaniora | Jurnal Pendidikan Dasar Kampus Cibiru* 12, no. 1 (2020): 15–24. https://doi.org/10.17509/eh.v12i1.15872.

Yunus, Muhammad. "Upaya Guru Membentuk Karakter Bangsa Pada Anak Usia Dini Melalui Proses Pembelajaran Di Yayasan Raudatul Athfal (Ra) Fathun Qarib." *Upaya Guru Membentuk Karakter Bangsa Pada Anak Usia Dini Melalui Proses Pembelajaran Di Yayasan Raudatul Athfal (Ra) Fathun Qarib* III, no. 2 (2015): 174–82.