

406

by ijier journal

Submission date: 11-Aug-2025 10:21PM (UTC+0700)

Submission ID: 2727619641

File name: 406.pdf (304K)

Word count: 6598

Character count: 37647

Methods for Strengthening Memorization Based on *Ta'lim al-Muta'allim* and Their Scientific Relevance

Fiqi Restu Subekti¹, Taufik Awan Wibowo²

Universitas Islam Negeri Sunan Kalijaga, Indonesia¹

Al-Asmarya Islamic University, Libya²

e-mail: fiqirestu912@gmail.com

Abstract: The capacity to memorise plays a pivotal role in Islamic educational tradition, particularly in the preservation of the authenticity of teachings through the transmission of the Qur'an and hadith. In the literary work *Ta'lim al-Muta'allim*, composed by al-Zarnuji, a seminal text in its field, a range of methodologies is presented for the purpose of enhancing memory. These methodologies encompass a variety of approaches, including diligent study, augmented worship, and the ingestion of specific substances such as honey, kundang, and red wine. The present study aims to examine these methods scientifically in order to determine their relevance to contemporary findings. Utilising a literature review and content analysis approach, this study examines the text of the book *Ta'lim al-Muta'allim* and compares it with the results of recent scientific research in the fields of cognitive science and health. The findings of the study demonstrate that the methods employed to enhance memory in the book can be categorised into three distinct classifications. Firstly, there is a need to acknowledge the scientific methods that have been proven to be effective. Such methods include diligent study, increasing worship, and consuming honey. Secondly, methods with potential scientific validity, such as the consumption of kundang and red wine, which have shown positive results in some preliminary studies, are also recommended. Thirdly, there are methods that have yet to be scientifically validated. These include the use of a miswak, reducing food intake, and consuming foods that reduce phlegm. These findings suggest that some of the classical educational heritage in the book remains relevant and can be integrated with modern scientific approaches. Consequently, al-Zarnuji's treatise is not only spiritually valuable but also has the potential to contribute to the development of contemporary learning methods.

Keywords: Memory Enhancement, the Book of *Ta'lim Al-Muta'allim*, Scientific Truth.

Abstrak: Kemampuan menghafal memiliki kedudukan penting dalam tradisi pendidikan Islam, terutama dalam menjaga otentisitas ajaran melalui transmisi Al-Qur'an dan hadis. Kitab *Ta'lim al-Muta'allim* karya al-Zarnuji menjadi salah satu rujukan klasik yang membahas berbagai metode untuk memperkuat hafalan, mulai dari rajin belajar, memperbanyak ibadah, hingga konsumsi bahan-bahan tertentu seperti madu, kundang, dan anggur merah. Penelitian ini bertujuan untuk menelaah metode-metode tersebut secara ilmiah, guna mengetahui sejauh mana relevansinya dengan temuan kontemporer. Dengan menggunakan pendekatan studi pustaka dan analisis isi, penelitian ini mengkaji teks kitab *Ta'lim al-Muta'allim* serta membandingkannya dengan hasil-hasil penelitian ilmiah terkini di bidang kognitif dan kesehatan. Hasil kajian menunjukkan bahwa metode penguatan hafalan dalam kitab tersebut dapat diklasifikasikan ke dalam tiga kategori. Pertama, metode yang terbukti secara ilmiah seperti tekun belajar, memperbanyak ibadah, dan konsumsi madu. Kedua, metode yang berpotensi terbukti secara ilmiah seperti konsumsi kundang dan anggur merah, yang menunjukkan hasil positif dalam beberapa studi awal. Ketiga, metode yang belum terbukti secara ilmiah seperti bersiwak, mengurangi makan, dan konsumsi makanan

yang mengurangi dahak. Temuan ini menunjukkan bahwa beberapa warisan pendidikan klasik dalam kitab tersebut masih relevan dan dapat diintegrasikan dengan pendekatan ilmiah modern. Dengan demikian, risalah al-Zarnuji tidak hanya bernilai spiritual, tetapi juga menyimpan potensi kontribusi dalam pengembangan metode pembelajaran kontemporer.

Kata Kunci: Penguatan Hafalan, Kitab *Ta'lim Al-Muta'allim*, Kebenaran Ilmiah.

Introduction

In the context of Islamic education, the ability to memorise plays a pivotal role. Since the early days of the spread of Islam, memorisation has been the primary means of preserving the authenticity of teachings, especially in the transmission of the Qur'an and hadith (Ayyad, 2022). This phenomenon can be attributed not only to the inherent limitations of written media in the past, but also to the spiritual and intellectual values associated with the practice of memorisation. The practice of memorisation is not merely a matter of storing information, but rather constitutes an integral component of the process of internalising Islamic values in daily life (Hasan et al., 2025). Consequently, the classical Islamic education system has identified memorisation as a fundamental component in shaping the character and scientific aptitude of students. It is therefore unsurprising that in a variety of Islamic educational institutions, memorisation activities are still maintained today as an integral part of the teaching and learning process.

One of the Islamic educational institutions most closely associated with the tradition of memorisation is the pesantren. Within the pesantren environment, the memorisation of texts is not limited to the Qur'an and hadith; it also encompasses other significant texts, including matan kitab kuning, fiqh rules, and ushul terms. These texts serve as the foundational principles for comprehending Islamic law. It is a common practice among students to prioritise memorisation as a preliminary step, followed by the attainment of a profound comprehension. This approach is founded on the belief that extensive memorisation will fortify their analytical capabilities, enabling them to navigate the intricacies of Islamic law with greater ease. In numerous pesantren, there are dedicated programmes that emphasise the memorisation of religious texts, including the Qur'an, as well as scientific texts. This tradition underscores the notion that memorisation is not merely a pedagogical approach, but rather a conduit to cultivating a distinctive scholarly disposition within the milieu of Islamic boarding schools (Zulhannan & Musyarrofah, 2024).

One of the classical books that is still taught in almost all Islamic boarding schools today is *Ta'lim al-Muta'allim*. This book is notable for its comprehensive coverage of etiquette for the pursuit of knowledge, in addition to providing practical guidance on the learning process. A key aspect of the book is the provision of strategies to enhance memorisation skills. In one of its discourses, the book proffers several recommendations for the enhancement of memory, including the avoidance of overeating, the augmentation of Quranic recitation, the eschewal of sinful acts, and the practice of nocturnal worship. It is noteworthy that the book also includes recommendations that may appear unconventional from a modern perspective, such as the ingestion of a mixture of honey and frankincense or the consumption of 21 red grapes each morning. Such practices naturally give rise to questions concerning the nature of the recommendations. Are these recommendations purely part of spiritual tradition, or do they have a scientific basis that can be tested and explained through contemporary approaches? The objective of this study is to analyse the memorisation methods outlined in the *Ta'lim al-Muta'allim* text, whilst also assessing the extent to which these recommendations are in alignment with contemporary scientific knowledge.

Should it be demonstrated that certain memorisation methods outlined in the book *Ta'lim al-Muta'allim* are consistent with scientific findings, this would serve to refute the assertion that the intellectual heritage of Islamic boarding schools is inferior to modern discoveries. Indeed, there is a strong probability that these methodologies could be adopted by formal educational institutions at all levels, from primary to tertiary education. It can thus be concluded that this classical heritage is not only relevant to pesantren circles, but also has great potential to enrich the world of education in general. It is anticipated that this research will make a significant contribution to the field of Islamic education by facilitating a more effective integration of tradition and modernity.

Methods

The present research is of a qualitative nature, with a focus on a literature study. The library research method is an approach to research that involves the collection, analysis and synthesis of data from a range of literature sources related to the research object. Primary data was drawn from *Ta'lim al-Muta'allim*, while secondary sources included peer-reviewed studies in cognitive science, psychology, and nutrition. Recommendations were coded into thematic categories (worship, diet, study techniques) and compared against empirical findings from systematic reviews or clinical trials. Methods were classified into three categories: supported, partially supported, and unsupported. Interpretations were validated through peer review to ensure consistency. The data collection technique employed is the documentation technique, whereby various documents and literature that are the objects of the study are examined in depth. Moreover, the data was subjected to content analysis in order to obtain comprehensive and in-depth conclusions regarding the scientific validity of the method of memory enhancement based on the book *Ta'lim al-Muta'allim*. The present study aims to measure the extent of the scientific validity of al-Zarnuji's method in strengthening memorisation based on his work in the book *Ta'lim al-Muta'allim*.

Result and Discussion

An Overview of the Book *Ta'lim al-Muta'allim*

The Book of *Ta'lim al-Muta'allim* is regarded as a foundational text within the Islamic pesantren tradition, serving as a primary reference source for scholars and practitioners alike. This book was compiled by Sheikh Burhanuddin Ibrahim al-Zarnuji al-Hanafi (often referred to as al-Zarnuji), a Hanafi scholar who lived around the 13th century (Matondang et al., 2024). The name 'al-Zarnuji' is derived from the region of Zarnuj, which is located near the Oxus (in present-day Turkey/Iran). Despite the ambiguity surrounding his biography, the contents of his book, entitled *Ta'lim al-Muta'allim*, have garnered significant popularity among traditional santri. *Ta'lim al-Muta'allim* delineates the etiquette and procedures for seeking knowledge (Hidayati et al., 2024). The book under review is concise in its approach, yet it successfully encompasses a comprehensive array of topics, including the principles of learning, the intentions of the student, ethics towards teachers, and practical learning tips. The present volume is a learning guide which has been translated into various languages and is still studied in traditional Islamic educational institutions such as pesantren. Consequently, this book is regarded as both a testament to classical Islamic literature and a practical guide that remains intimately connected to the realm of santri education in the present day.

In the preface to his book, al-Zarnuji states the motivation behind writing *Ta'lim al-Muta'allim*, citing his concern for students of his time who, despite their diligence in seeking knowledge, were unable to achieve the desired results. In other words, despite their diligent

study and memorisation, students often failed to gain the benefits or fruits of their knowledge (Solihin, 2021). Al-Zarnuji identified the cause as a flawed method, with students “going astray” in their pursuit of knowledge by neglecting the proper conditions for learning. Consequently, he deemed it imperative to re-explain the proper methods of learning, drawing upon the extant literature and teachings of previous scholars (Mufid & Tamam, 2024). In the hope of providing students with guidance so that they do not err, he composed this book after seeking guidance from Allah. The primary objective of this initiative is to enhance the efficacy of the learning process, thereby facilitating the comprehension, practical application, and dissemination of knowledge. This context underscores the pressing need for this book within the domain of Islamic education. The present volume was composed with a view to addressing the traditional issues faced by santri, with a view to ensuring that the knowledge they acquire is of genuine benefit in both this world and the hereafter.

The Suitability of Methods for Strengthening Memorisation in Ta’lim al-Muta’allim from a Scientific Perspective

Table 1. Various ways to strengthen memorisation based on ²the book *Ta’lim al-Muta’allim*

How to strengthen memorisation in the book <i>Ta’lim al-Muta’allim</i>	Translation	Explanation
المواظبة	Study diligently	Can strengthen memory, but must be accompanied by various learning strategies
صلاة الليل وقراءة القرآن ويكثر الصلاة على النبي	Worship (night prayers, reading the Qur'an, and increasing prayers)	Can strengthen memory, albeit indirectly
تقليل الغذاء	Eat less	There is no scientific evidence to show that reducing food intake can strengthen memory
السواك	Use a miswak (twigs or roots of the <i>Salvadora Persica</i> tree are used as a natural toothbrush)	There is no scientific evidence to show that using a miswak can strengthen memory
شرب العسل	Drink honey	Scientifically proven to strengthen memory
اكل الكندر مع السكر	Eat kudar (a type of incense) mixed with sugar	Has great potential to strengthen memory
اكل احدى وعشرين زنبية حمراء كل يوم على الريق	Eat 21 red grapes every morning before eating anything else	Has the potential to strengthen memory, although further scientific research is needed
كل ما يقلل البلغم	Eat something that can reduce phlegm	There is no scientific evidence showing that eating something that reduces phlegm can strengthen memory

As demonstrated in the above table, the subsequent conclusions can be drawn: *Firstly*, the student is expected to demonstrate diligence and a strong work ethic in their academic studies. Scientific research has indicated that diligent and consistent study can indeed result in the strengthening of memory. A study of primary school children found that the more time spent studying, the more their perception of their memory abilities tended to improve, although the relationship between study time and memory outcomes can be influenced by age and the learning strategies used (Koriat et al., 2009). Research indicates that the use of repetition and variation in learning, such as reading the same material repeatedly or in different ways, can enhance both understanding and memory, especially when both approaches are combined (Marton et al., 2005). Moreover, technology-based learning methods, such as machine learning algorithms that organise the sequence of material, have been proven to extend memory retention by up to 69%, even when learning frequency and duration are controlled (Upadhyay, 2021). Strategies such as chunking (the grouping of information) and retrieval practice, in addition to consolidation through sleep, have been scientifically proven to be effective in memory strengthening (Azzam & Eastel, 2020). A comprehensive review of the extant scientific literature indicates that consistent learning, when combined with appropriate strategies and planned repetition, is indeed an effective method of enhancing memory.

Secondly, the act of worship. A number of studies have demonstrated that an increase in religious worship can exert a favourable influence on both psychological and academic domains. This impact encompasses the enhancement of learning motivation, discipline, and academic achievement, which in turn can serve to indirectly fortify memory skills. A qualitative study conducted in Indonesia revealed that students who regularly engage in worship exhibited enhancements in motivation, self-confidence, and discipline. These elements collectively contribute to enhanced academic performance, including the memorisation of lessons or sacred verses (Hidayah et al., 2021). The tahfidzul Qur'an programme, which emphasises the memorisation of the Qur'an and the augmentation of worship, has been proven to engender improvements in students' spiritual intelligence, including patience, self-motivation, and emotional control (Nisa et al., 2025). These factors are of paramount importance in the process of memorisation. Furthermore, the adoption of learning methods that prioritise comprehension and experiential learning in the context of worship has been demonstrated to enhance student engagement and facilitate a more profound comprehension of the subject matter. This, in turn, can support the process of memorisation (Syam et al., 2025). Despite the paucity of experimental studies that have directly measured the relationship between the frequency of worship and memorisation strength, extant evidence suggests that increased worship can strengthen the psychological and spiritual factors that support memorisation ability.

Thirdly, the reduction of food intake is recommended. To date, there is an absence of scientific evidence that directly demonstrates the efficacy of reducing food intake (fasting or restricting food intake) in enhancing memory or recall specifically. A number of studies have concentrated on the relationship between eating patterns, attention during meals, and self-control over food intake, as well as their connection to memory of the food consumed, rather than memory or recall in general (Hawton et al., 2018). The extant literature suggests that the act of paying attention to food during meals can enhance memory of the food consumed. However, these studies do not directly address improvements in memory capacity outside the context of food (Higgs & Donohoe, 2011). It is evident from the extant research that cognitive training and mindfulness have the capacity to assist in the regulation of food cravings and the enhancement of self-regulation (Boswell et al., 2018; Torske et al., 2025). However, the literature does not provide a specific correlation between the reduction of food intake and the

improvement of memory. Consequently, the assertion that reducing food intake can enhance memory requires further research to obtain robust and specific scientific evidence.

Fourthly, the use of a miswak (twigs or roots of the *Salvadora Persica* tree are used as a natural toothbrush) is recommended. To date, the scientific evidence directly demonstrating the efficacy of miswak in enhancing memory is scant. The extant literature on the subject is largely theoretical in nature, derived from classical texts, rather than being grounded in the findings of contemporary experimental research. It has been hypothesised that siwak (*salvadora persica*) can assist in the elimination of mucus, which is believed in classical literature to be a contributing factor to poor memory retention. This indirect association suggests a potential for enhancing memory retention (A'yun, 2019). However, contemporary studies have predominantly evidenced the merits of siwak for oral and dental well-being, including the reduction of plaque and the enhancement of ²periodontal health, without specifically addressing its association with memory retention (Ramli ³et al., 2021; Zarabadipour ⁴et al., 2020; Dom ⁵et al., 2023). Zuhdi (2023) highlights the spiritual and communal value of the siwak practice, which has been shown to improve mood and reduce stress. However, the study does not provide direct evidence for the hypothesis that the practice improves memory or recall. Consequently, the assertion that siwak can enhance memory requires further scientific investigation to obtain robust and specific evidence.

The fifth recommendation is to consume honey. ⁴A number of scientific studies have demonstrated that ⁵the ingestion of ⁶honey can engender beneficial effects on cerebral function, including the strengthening of memory and the enhancement of learning abilities. Research conducted on ⁷both animals and humans, with a particular focus on Tualang honey from Malaysia, has demonstrated the potential of ⁸honey in enhancing brain structures associated with memory, reducing oxidative stress within the brain, increasing levels of ⁹brain-derived neurotrophic factor (BDNF) and ¹⁰acetylcholine, and decreasing ¹¹acetylcholinesterase enzyme activity. These factors have been identified as being crucial in the formation and strengthening of memory (Othman et al., 2015; Zamri et al., 2023; Dar, 2020). The ¹²flavonoids and phenolic acids present in ¹³honey also function as antioxidants and anti-inflammatory agents, protecting brain cells from damage and supporting cognitive ¹⁴health, including the prevention of memory decline in diseases such as Alzheimer's (Shaikh ¹⁵et al., 2023; Rahman ¹⁶et al., 2014; Abdulmajeed ¹⁷et al., 2016). Furthermore, laboratory ¹⁸studies have indicated that honey can enhance spatial memory (i.e. memory related to space) in experimental animals (Kamarulzaidi, 2014).

Sixthly, the ingestion of frankincense mixed with sugar is recommended. A number of scientific studies have indicated that the ingestion of frankincense (*Boswellia*) may enhance memory quality, with this assertion being primarily supported by animal studies and a limited number of human studies. The active compounds in frankincense, such as boswellic acid, have been shown to possess anti-inflammatory and neuroprotective effects that may support brain function and memory (Khajehdehi et al., 2022). Research conducted on mouse models of Alzheimer's disease and memory impairment has indicated that the administration of frankincense extract has a positive effect on memory performance (Beheshti & Karimi, 2016; Beheshti et al., 2018; Khalaj-Kondori et al., 2021). In human subjects, the ingestion of frankincense for a period of four weeks has also been demonstrated to enhance memory (Asadi et al., 2019). Furthermore, Frankincense has been demonstrated to enhance synaptic transmission and glutamate levels within the brain, which have been shown to play a role in learning and memory processes (Aburawi et al., 2020). The preponderance of extant evidence derives from animal studies, with limited availability of human studies, yet these initial results are deemed encouraging. It is therefore evident that further clinical studies in human subjects

are required in order to corroborate the efficacy and safety of frankincense in enhancing memory quality.

Seventhly, the consumption of red grapes is recommended. A number of studies have demonstrated that the ingestion of red wine, particularly in the form of polyphenol-rich juice, can engender advantageous effects on cognitive function and memory, especially in adults experiencing mild memory loss or the elderly. A number of studies conducted on human subjects across middle-aged to older age groups have indicated that the consumption of grape juice over a period of several weeks has the potential to enhance verbal memory, spatial memory, and cognitive performance in daily activities (Krikorian et al., 2010; Lampert et al., 2016). Furthermore, research has demonstrated that polyphenol extracts from grapes and blueberries can enhance episodic memory in elderly individuals experiencing cognitive decline. However, it should be noted that outcomes vary depending on the study's design and dosage (Bensalem et al., 2018). In experimental animal studies, including Alzheimer's disease mouse models and aged mice, the administration of red grape juice has been shown to enhance learning speed and ⁴memory. This effect is likely attributable to the antioxidant content of red grape juice, which ⁴protects the brain from oxidative stress (Siahmard et al., 2012; Mohammed et al., 2010). However, a study conducted on a sample of older men diagnosed with subjective memory impairment revealed no significant enhancement in memory performance following the ingestion of red grape juice, despite a concomitant reduction in inflammatory biomarkers (Bohn et al., 2021). The extant scientific literature offers a mixed picture with respect to the potential of red grape to enhance cognitive function, particularly in populations exhibiting mild cognitive decline. Nonetheless, the findings do appear to support the hypothesis that the effects of red grapes may vary, and further research is required to confirm its benefits across a broader population.

As a final recommendation, it is prudent to consume foods that have the capacity to reduce phlegm. There is an absence of direct scientific evidence to support the hypothesis that foods or herbs that reduce phlegm (expectorants) automatically improve memory. However, in traditional Chinese medicine, there are herbs such as Dangshen Yuanzhi Powder that are used to treat memory disorders associated with 'turbid phlegm' (thick phlegm) in the head. Animal studies suggest that this herb may improve learning and memory abilities, possibly through improving gut microbiota balance and reducing inflammation (Ren ⁶et al., 2022). However, the mechanism of memory improvement is more closely related to the ⁶modulation of the gut-brain axis and biochemical improvements ⁶in the body, rather than solely due to phlegm reduction (Yue et al., 2025). In general, foods that promote gut health and reduce inflammation can support cognitive function; however, claims that foods specifically reducing phlegm can enhance memory require further research and are not yet supported by strong scientific evidence (Jeong et al., 2021).

Practical Integration of Findings Into Contemporary Education

In the context of contemporary education, diligent learning is not only defined as spending hours in front of books, but also as organising effective learning strategies. For example, teachers can apply the spaced repetition method by creating a schedule for reviewing material at certain intervals. For example, after learning new material, students are asked to review it again the next day, a week later, and a month later. This strategy can be complemented with short quizzes at the beginning or end of the lesson to prompt students to recall the material they have learned. From a pedagogical perspective, teachers can encourage students to actively discuss, create personal summaries, or present the material again in front of the class. These activities not only train memory but also enhance understanding. Additionally, the use of mind mapping or visual aids can help connect information, making it easier to remember. Combining

intensive learning with planned breaks is also important to allow the brain time to process information.

Furthermore, reading the Quran and performing night prayers can be integrated into modern education through scheduled worship activities. For example, in Islamic schools or boarding schools, before starting morning lessons, there is a 10–15 minute session of reading the Quran together. In dormitories, students can be guided to perform night prayers in congregation once or twice a week. This activity not only builds spiritual habits but also serves as a quiet time that trains focus and concentration. From a pedagogical perspective, teachers and mentors can explain the benefits of worship for mental health and readiness to learn, similar to the concept of mindfulness that is popular in modern education. Prayer before studying can also be introduced as a calming ritual that strengthens intentions and prepares the brain to absorb information. Thus, worship is not only seen from the aspect of religious obligation but also as a holistic learning strategy.

Furthermore, the use of honey as a memory enhancer can be applied practically through the provision of healthy menus at school. For example, the canteen can provide warm honey tea or a healthy breakfast of whole wheat bread with honey spread. On some occasions, students can be invited to create healthy honey-based recipes as part of nutrition education. Pedagogically, teachers can utilise this topic to explain the benefits of honey in biology or science lessons, particularly regarding its antioxidant content and its role in brain health. Project activities such as creating educational posters about the benefits of honey or writing simple scientific essays can help students connect traditional knowledge with modern science. This fosters appreciation for cultural heritage while developing scientific literacy skills.

Furthermore, although the use of kundan in its original form may be impractical for the modern school context, its beneficial principles can be adapted. For example, schools can introduce supplements or herbal drinks that have anti-inflammatory properties and support brain function, such as ginger, turmeric, or temulawak, which are more commonly consumed. The pedagogical approach can be implemented by incorporating discussions about kundan into history, fiqh, or cultural studies lessons, then linking them to scientific explanations about the content of boswellic acid and its potential benefits for the brain. In this way, students not only learn about the health benefits but also understand the historical context and traditional use of kundan. Teachers can also facilitate discussions about how traditions can be tested and adapted in line with scientific advancements.

Finally, the practical application of the recommendation to eat 21 red grapes every morning can be adapted by providing fresh grapes or sugar-free grape juice in the school canteen. In addition, schools can organise school gardening programmes where students plant and care for grape vines or other berry plants. These activities not only introduce the benefits of antioxidant-rich fruits, but also teach gardening skills and responsibility. From an educational perspective, teachers can integrate discussions about the benefits of grape polyphenols into science or nutrition lessons. Group-based projects such as creating health brochures, simple experiments on antioxidants, or healthy food creation competitions using grapes will reinforce students' understanding. In this way, healthy habits rooted in tradition can be revived in a form suitable for the modern era.

Conclusion

Based on the above explanation, it can be concluded that the memory enhancement methods described in Ta'lim al-Muta'allim can be scientifically classified into three categories: (1) methods that have been scientifically proven, such as diligent study, the consumption of

honey, and performing additional acts of worship; (2) methods that have the potential to be scientifically proven, such as the ingestion of kundang (a type of incense) and red wine; and (3) methods that have not yet been scientifically proven, such as reducing food intake, using a miswak, and eating substances that can reduce phlegm. This study has several limitations, including its qualitative-descriptive nature based solely on literature review without empirical testing, the difficulty of accurately identifying certain substances or practices in a modern context, and the lack of consideration for cultural, geographical, and individual health factors that may influence the effectiveness of these methods.

For future research, it is recommended to conduct experimental or clinical studies to verify the effectiveness of methods with scientific potential, such as kundang and red wine consumption. Further studies may also focus on comparative research between traditional methods found in classical Islamic literature and modern memory enhancement techniques, employing an interdisciplinary approach involving medicine, nutrition, psychology, and education. Additionally, field studies are encouraged to explore the practical application of these methods in contemporary society, taking into account adaptations to current health conditions and environmental factors.

References

- Abdulmajeed, W., Sulieman, H., Zubayr, M., Imam, A., Amin, A., Biliaminu, S., Oyewole, L., & Owoyale, B. (2016). "Honey prevents neurobehavioural deficit and oxidative stress induced by lead acetate exposure in male wistar rats- a preliminary study". *Metabolic Brain Disease*, 31, 37-44. <https://doi.org/10.1007/s11011-015-9733-6>.
- Aburawi, S., Buabaid, M., Auzi, A., Mahmud, M., Buabaid, M., & Al-Tubuly, R. (2020). "Peningkatan Efek Memori Spasial Ekstrak Jintan Hitam, Kemenyan, dan Jahe pada Mencit Albino". *Jurnal Farmasi dan Farmakologi*. <https://doi.org/10.17265/2328-2150/2020.08.004>.
- Al-Zarnuji. (2009). *Ta'lim al-Muta'allim*, trans. Abdul Kadir Aljufri. Surabaya: Mutiara Ilmu.
- Asadi, E., Kaseb, M., Zeidabadi, R., & Hamedinia, M. (2019). "Efek konsumsi kemenyan selama 4 minggu terhadap memori motorik eksplisit dan BDNF serum pada pria lanjut usia". *Jurnal Ilmu Kedokteran Turki*, 49, 1033 - 1040. <https://doi.org/10.3906/sag-1810-204>.
- Ayyad, E. (2022). "Re-Evaluating Early Memorization of the Qur'ān in Medieval Muslim Cultures". *Religions*. <https://doi.org/10.3390/rel13020179>.
- A'yun, Q. (2019). "Sunnah Siwakan in Health Science Perspektif and Power of Faith". *Journal Intellectual Sufism Research (JISR)*, 2, 30-33. <https://doi.org/10.52032/jisr.v2i1.58>.
- Azzam, M., & Easteal, R. (2020). "Neuroanatomical Approaches to Improving Student Learning in Science Education". *The FASEB Journal*, 34. <https://doi.org/10.1096/fasebj.2020.34.s1.02109>.
- Beheshti, S., & Karimi, B. (2016). "Kemenyan meningkatkan kemampuan mengingat pada tikus yang diberi Lipopolisakarida". *Jurnal Farmakologi HerbMed*, 5, 12-16.
- Beheshti, S., Skakakomi, A., Ghaedi, K., & Dehestani, H. (2018). "Kemenyan meningkatkan aktivitas kalsium/kalmodulin kinase II-α hipokampus selama perkembangan otak tikus dan meningkatkan kinerja memori". *Jurnal Internasional Ilmu Saraf Perkembangan*, 69, 44-48. <https://doi.org/10.1016/j.ijdevneu.2018.06.011>.
- Bensalem, J., Dudonné, S., Etchamendy, N., Pellay, H., Amadiou, C., Gaudout, D., Dubreuil, S., Paradis, M., Pomerleau, S., Capuron, L., Hudon, C., Layé, S., Desjardins, Y., & Pallet, V. (2018). "Polyphenols From Grape and Blueberry Improve Episodic Memory in Healthy Elderly with Lower Level of Memory Performance: A Bicentric Double-Blind, Randomized,

- Placebo-Controlled Clinical Study". *The journals of gerontology. Series A, Biological sciences and medical sciences*, 74(7), 996-1007 . <https://doi.org/10.1093/gerona/gly166>.
- Bøhn, S., Myhrstad, M., Thoresen, M., Erlund, I., Vasstrand, A., Marciuch, A., Carlsen, M., Bastani, N., Engedal, K., Flekkoy, K., & Blomhoff, R. (2021). "Bilberry/red grape juice decreases plasma biomarkers of inflammation and tissue damage in aged men with subjective memory impairment –a randomized clinical trial". *BMC Nutrition*, 7. <https://doi.org/10.1186/s40795-021-00482-8>.
- Boswell, R., Sun, W., Suzuki, S., & Kober, H. (2018). "Training in cognitive strategies reduces eating and improves food choice". *Proceedings of the National Academy of Sciences*, 115, E11238 - E11247. <https://doi.org/10.1073/pnas.1717092115>.
- Dar, N. J. (2020). "Neuroprotective Effects of Honey: A Mechanistic View". In *Therapeutic Applications of Honey and its Phytochemicals: Volume II* (pp. 45-60). Singapore: Springer Singapore. <https://doi.org/10.1007/978-981-15-7305-73>.
- Hasan, M., Sintasari, B., & Mujahidin, M. (2025). "Integration of Spiritual and Cognitive Dimensions in Hadith Learning Jala'ul Afkar". *Irsyaduna: Jurnal Studi Kemahasiswaan*. <https://doi.org/10.54437/irsyaduna.v5i1.2049>.
- Hawton, K., Ferriday, D., Rogers, P., Toner, P., Brooks, J., Holly, J., Biernacka, K., Hamilton-Shield, J., & Hinton, E. (2018). "Slow Down: Behavioural and Physiological Effects of Reducing Eating Rate". *Nutrients*, 11. <https://doi.org/10.3390/nu11010050>.
- Hidayah, R., Mu'awanah, E., Zamhari, A., Munardji, M., & Naqiyah, N. (2021). "Learning Worship as a Way to Improve Students' Discipline, Motivation, and Achievement at School". *Journal of Ethnic and Cultural Studies*. <https://doi.org/10.29333/EJCS748>.
- Hidayati, A., Huda, F., P., Hasanah, I., Azhar, M., Faqihuddin, A., & Syahidin, S. (2024). "Konsep Pendidikan Islam dalam Kitab Ta'lim al-Muta'allim Karya Al-Zarnuji serta Implementasinya dalam Konteks Pendidikan Islam". *ALFIHRIS : Jurnal Inspirasi Pendidikan*. <https://doi.org/10.59246/alfihris.v2i3.888>.
- Higgs, S., & Donohoe, J. (2011). "Focusing on food during lunch enhances lunch memory and decreases later snack intake". *Appetite*, 57, 202-206. <https://doi.org/10.1016/j.appet.2011.04.016>.
- Jeong, D., Ryu, M., Yang, H., & Park, S. (2021). "Chungkookjang Kaya γ -PGA, Kedelai Fermentasi Jangka Pendek: Mencegah Gangguan Memori dengan Memodulasi Sensitivitas Insulin Otak, Neuroinflamasi, dan Sumbu Usus-Mikrobioma-Otak". *Foods*, 10. <https://doi.org/10.3390/foods10020221>.
- Kamarulzaidi, M. A., Yusoff, Z. M., & Adli, D. S. H. (2014). "Quranic Advocation of Honey Consumption and its Application Towards Memory Enhancement". *QURANICA-International Journal of Quranic Research*, 6(1), 17-32. <https://doi.org/10.22452/QURANICA.VOL6NO1.2>.
- Khajehdehi, M., Khalaj-Kondori, M., & Baradaran, B. (2022). "Bukti molekuler tentang efek antiinflamasi, antikanker, dan peningkatan daya ingat kemenyan". *Penelitian Fitoterapi*, 36, 1194 - 1215. <https://doi.org/10.1002/ptr.7399>.
- Khalaj-Kondori, M., Khajehdehi, M., & Torkdari, Z. (2021). "Kemenyan Meningkatkan Gen FMR1 dan Mengurangi Gangguan Memori Akibat AIC3 pada Tikus". 7, 125-132. <https://doi.org/10.22080/JGR.2021.20581.1231>.
- Koriat, A., Ackerman, R., Lockl, K., & Schneider, W. (2009). "The memorizing effort heuristic in judgments of learning: a developmental perspective". *Journal of experimental child psychology*, 102 3, 265-79 . <https://doi.org/10.1016/j.jecp.2008.10.005>.
- Krikorian, R., Nash, T., Shidler, M., Shukitt-Hale, B., & Joseph, J. (2010). "Concord grape juice supplementation improves memory function in older adults with mild cognitive

- impairment". *The British journal of nutrition*, 103 5, 730-4 .
<https://doi.org/10.1017/S0007114509992364>.
- Lampert, D., Lawton, C., Merat, N., Jamson, H., Myrissa, K., Hofman, D., Chadwick, H., Quad, F., Wightman, J., & Dye, L. (2016). "Concord grape juice, cognitive function, and driving performance: a 12-wk, placebo-controlled, randomized crossover trial in mothers of preteen children". *The American journal of clinical nutrition*, 103(3), 775-83 .
<https://doi.org/10.3945/ajcn.115.114553>.
- Marton, F., Wen, Q., & Wong, K. (2005). "'Read a hundred times and the meaning will appear ...' Changes in Chinese University students' views of the temporal structure of learning". *Higher Education*, 49, 291-318. <https://doi.org/10.1007/S10734-004-6667-Z>.
- Matondang, M., Rohimin, R., & Nurhidayat, N. (2024). "Konsep Etika Pelajar dalam Membentuk Pendidikan Karakter Perspektif Kitab Ta'limul Muta'Alim Karya Syekh Burhanudin Az-Zarnuji". *Al-Baitsu: Jurnal Penelitian Pendidikan Islam*.
<https://doi.org/10.29300/btu.v9i2.5776>.
- Mohammad, E., Hosseini, A., Saedi, A., Golbidi, D., Parisi, P., & Alaei, H. (2010). "Effect of Red Grape Juice on Learning and Passive Avoidance Memory in Rats". *Journal of Isfahan Medical School*, 28, 1-7.
- Mufid, M., & Tamam, A. (2024). "Islamic Education Theory Al-Zarnuji's Perspective in The Book Ta'lim Al-Muta'allim". *Interdisciplinary Journal and Humanity (INJURY)*.
<https://doi.org/10.58631/injury.v3i1.158>.
- Nisa, L., Mufaizah, M., & Huda, M. (2025). "Implementasi Program Tahfidzul Qur'an dalam Meningkatkan Kecerdasan Spiritual Siswi MTs Al-Jihadul Chakim Gondang Mojokerto". *YASIN*. <https://doi.org/10.58578/yasin.v5i1.4835>.
- Othman, Z., Zakaria, R., Hussain, N., Hassan, A., Shafin, N., Al-Rahbi, B., & Ahmad, A. (2015). "Potential Role of Honey in Learning and Memory". *Medical Sciences*, 3, 3-15.
<https://doi.org/10.3390/medsci3020003>.
- Rahman, M., Gan, S., & Khalil, M. (2014). "Neurological Effects of Honey: Current and Future Prospects". *Evidence-based Complementary and Alternative Medicine: eCAM*.
<https://doi.org/10.1155/2014/958721>.
- Ramli, H., Mohd-Dom, T., & Mohd-Said, S. (2021). "Clinical benefits and adverse effects of siwak (S. persica) use on periodontal health: a scoping review of literature". *BMC Oral Health*, 21. <https://doi.org/10.1186/s12903-021-01950-0>.
- Ren, H., Gao, S., Wang, S., Wang, J., Cheng, Y., Wang, Y., & Wang, Y. (2022). "Efek Bubuk Dangshen Yuanzhi terhadap kemampuan belajar dan mikroflora usus pada tikus dengan gangguan memori". *Jurnal Etnofarmakologi*, 115410.
<https://doi.org/10.1016/j.jep.2022.115410>.
- Shaikh, A., Ahmad, F., Teoh, S., Kumar, J., & Yahaya, M. (2023). "Honey and Alzheimer's Disease—Current Understanding and Future Prospects". *Antioxidants*, 12.
<https://doi.org/10.3390/antiox12020427>.
- Siahmard, Z., Alaei, H., Reisi, P., & Pilehvarian, A. (2012). "The effect of red grape juice on Alzheimer's disease in rats". *Advanced Biomedical Research*, 1.
<https://doi.org/10.4103/2277-9175.100188>.
- Solihin, A. (2021). "Konsep Kurikulum Pendidikan dalam Perspektif Az-Zarnûji". *IQ (Ilmu Al-qur'an): Jurnal Pendidikan Islam*. <https://doi.org/10.37542/iq.v4i02.247>.
- Syam, K., Rannaloe, M., Jumriani, I., & Sappiribborong, M. (2025). "Improving Student Learning Outcomes through the Quantum Teaching Learning Model on Worship Material and Its Characteristics at MA Guppi Rannaloe". *Jurnal Profesi Guru Indonesia*.
<https://doi.org/10.62945/jpgi.v2i1.527>.

- Torske, A., Schicker, D., Freiherr, J., & Koch, K. (2025). "Mindfulness training decreases the habituation response to persistent food stimulation". *Scientific Reports*, 15. <https://doi.org/10.1038/s41598-025-90172-3>.
- Upadhyay, U., Lancashire, G., Moser, C., & Gomez-Rodriguez, M. (2021). "Large-scale randomized experiments reveals that machine learning-based instruction helps people memorize more effectively". *NPJ Science of Learning*, 6. <https://doi.org/10.1038/s41539-021-00105-8>.
- Yue, Y., Yang, H., Li, C., Ryu, M., Seo, J., Jeong, D., & Park, S. (2025). "Efek Menguntungkan Kecap Kedelai Fermentasi Tradisional (Kanjang) terhadap Fungsi Memori, Kadar Air Tubuh, dan Metabolisme Glukosa: Peran Mikrobiota Usus dan Neuroinflamasi". *Nutrisi*, 17. <https://doi.org/10.3390/nu17101617>.
- Zamri, N., Ghani, N., Ismail, C., Zakaria, R., & Shafin, N. (2023). "Honey on brain health: A promising brain booster". *Frontiers in Aging Neuroscience*, 14. <https://doi.org/10.3389/fnagi.2022.1092596>.
- Zuhdi, M. (2023). "MENUJU KELUARGA SAKINAH DENGAN BERSIWAK". *al-Rasikh: Jurnal Hukum Islam*. <https://doi.org/10.38073/rasikh.v12i2.1781>.
- Zulhannan, Z., & Musyarrofah, U. (2024). "Education System and Network of Quran Memorization Islamic Boarding Schools in Kudus, Surakarta, and Bogor". *Millah: Journal of Religious Studies*. <https://doi.org/10.20885/millah.vol23.iss1.art10>.

ORIGINALITY REPORT

5%

SIMILARITY INDEX

3%

INTERNET SOURCES

5%

PUBLICATIONS

3%

STUDENT PAPERS

PRIMARY SOURCES

1

Submitted to LL DIKTI IX Turnitin Consortium
Part III

Student Paper

2%

2

injury.pusatpublikasi.id

Internet Source

1%

3

journal.ia-education.com

Internet Source

1%

4

"Therapeutic Applications of Honey and its
Phytochemicals", Springer Science and
Business Media LLC, 2020

Publication

1%

5

Ebru Emekli-Alturfan. "Zebrafish Models of
Neurodegenerative Disorders", CRC Press,
2025

Publication

1%

Exclude quotes On

Exclude matches < 1%

Exclude bibliography On