



Memorizing the Qur'an: The Science Behind Children's Remarkable Ability

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Abstract. This qualitative study aimed to analyze the cognitive model used by children in memorizing the Qur'an and compare the contribution of each systemic cognitivist modelling (SCM) indicator to their average ability. Thirty students were randomly selected as the sample, and the results indicated that the children's memorization ability was quite good. The study identified several stages of systemic cognitive modelling for memorizing the Qur'an, including encoding, retention, rehearsal, retrieval, decoding, and successful memorization. The implication of this research is that educators could use these findings to develop effective teaching strategies that support the cognitive development of children and improve their memorization skills.

Keywords: Cognitive modeling · Qur'an memorization · Children · Encoding · Retrieval

1 Introduction

Indonesia is a country with the largest Muslim population in the world, the number of memorizers of the Qur'an in Indonesia is recorded as the most significant number of people who have memorized the Qur'an in the world [1]. Reading the Qur'an is a must for Muslims. Meanwhile, memorizing the Qur'an is one way to understand the contents of the Qur'an [2]. Memorizing the Qur'an is not easy; therefore, a programmed method is needed to improve the ability to memorize the Qur'an [3]. Al-Qur'an learning methods in Indonesia include the *sima'i*, the *wahdah*, and the *jama'* [4]. A person's intelligence is influenced by psychological factors [5]. The memorization potential of each individual is different, some are weak, and some are strong. Weak and robust memorization potential is highly dependent on concentration and self-intensity to achieve memorization success [6]. Qur'an memorizers' memories are sharp because they will always try to match the verses they have memorized with the original text and the meaning of its content [7].

Some education experts argue that specific learning strategies require certain learning styles. The activity of memorizing the Qur'an is closely related to cognitive style. Cognitive style is one method that needs to be used in memorizing the Qur'an [8]. because cognitive style refers to knowledge, understanding, perception, imagination, thinking,

and problem-solving. Cognitive style is closely related to thinking, memorizing, feeling, solving problems, and making decisions. (-, 2018).

Cognitive style is closely related to memory in the brain. The brain is an organ created by Allah. Memory power in the brain exceeds the electronic devices created by humans. The more stimuli touch the brain, the stronger the catching power will be. On the other hand, if the brain lacks touch, the memory power will also weaken [9]. The brain can store and receive any memory when touched with the proper techniques.

Cognitive style is used in the process of memorizing the Qur'an by using an effortful processing process, namely entering information in a way that is attempted, cultivated, and can be used when repeating the memorization of the Qur'an again. This cognitive style focuses on memory, but habituation or reflection is still needed [10]. In the world of education, cognitive theory prioritizes the learning process, which includes the realm of memory, information processing, emotions, and other psychological aspects, as well as the working process of the brain in thinking, remembering, processing information, and emotions [2].

In memorizing the Qur'an, there are two conditions that must be met, namely memorizing the Qur'an in memory and reciting verses that have been memorized by heart without opening the Al-Quran manuscripts [11]. Therefore, in memorizing the Qur'an, a person requires a process of remembering. Knowledge or information learned must be sent, stored, and remembered in memory. In remembering, memory stores things they have learned before [12]. Information that has been received through the senses of the human body and information that has been in long-term memory are combined. The interaction of the two information is limited by the time factor and memory capacity [13].

Memorizing in psychological theory is a process of entering information through three processes: (1) entering information into memory or (encoding), (2) storing information into a memory warehouse (storage) (3) repetition of information that is poured into written, spoken, and written form, cues, or just images in the brain (recall/retrieval) [14]. Each student has a different style of processing information. Therefore, cognitive style is the steps taken by students in processing information through responsive strategies to the given task [15].

There are different ways of recognizing, viewing, and organizing information to understand cognitive style. Each student will choose his way of processing and organizing that suits him in response to the stimuli provided by the environment. Some students are quick to respond, and some are slow [16]. These ways of responding are also closely related to these students' behaviour and personal qualities. Students' cognitive styles represent variations in processing information, paying attention, remembering, thinking, and making distinctions between cognition and personality. Generally, cognitive styles are acquired and formed over a long period as a continuum [17] (Fig. 1).

The position of cognitive style in the learning process is significant for teachers to pay attention to, especially in memorizing the Qur'an. Because the potential for memorizing the Qur'an of students differs from one another, some are strong, and some are weak, depending on how they try to concentrate to succeed in memorizing the Qur'an. The first thing that the teacher needs to do is to test students' characteristics, which are directed at the cognitive style identification test. Some students have a cognitive style

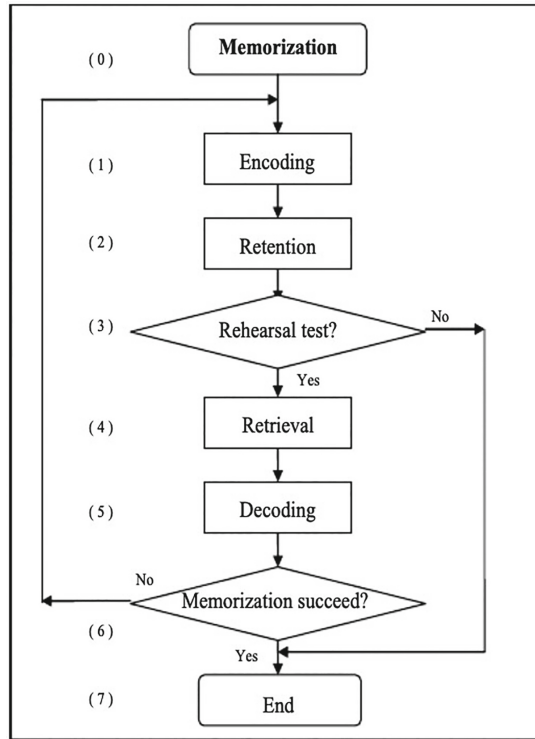


Fig. 1. The cognitive process of memorization [18]

that leads to a global perception style, feel a heavy burden, and are difficult to process information. However, it is easy to perceive if the information is manipulated according to the context. At the same time, some other students have psychological differences that lead to articulation. The student has analytical perception by separating the stimulus from the context, but the level of perception is low when the context changes. These psychological differences can be changed through exposure to various situations [19].

Many studies discuss cognitive styles in learning Qur'an in different contexts, for example, research conducted by [20–24]. However, research on cognitive models in learning the Qur'an has not been done much. At the same time, the cognitive model is an essential component in learning the Qur'an. So, research with this theme is fascinating and important to do. Thus, this study aims to answer the question: How is the cognitive model in learning the Qur'an in Indonesia?

2 Methodology

This study was designed as a qualitative research. Qualitative research can be presented in descriptive analysis [25]. The study outlined in this article aims to describe and explain the cognitive learning model teachers use in teaching *tahfidz* at Darul Qur'an *Tahfidz* School located in Mojogeneng, Jatirejo, Mojokerto, East Java. Informants in this study

Table 1. Cognitivist Modelling for Memorizing Qur'an Indicator

Indicator	Explanation
<i>Encoding</i>	Entering the memorization of the Qur'an into memory
<i>Retention/Storage</i>	Saving the memorization of the Qur'an into memory
<i>Retrieval/Recall</i>	Repetition of memorization through writing, speech, gestures, or even just an image in the brain

Table 2. Cognitivist Modelling for Memorizing Qur'an Instrument Example

Instrument	Indicator
I read the Qur'an before memorizing	<i>Encoding</i>
I hear the verses of the Qur'an before	
I memorize the Qur'an by imagining the meaning	<i>Retention/Storage</i>
I memorize the Qur'an by imagining the writings	
I repeat the old memorization first before adding new memorization	<i>Retrieval/recall</i>
I checked the suitability of my memorization and whether it followed the text in the Qur'anic manuscripts.	

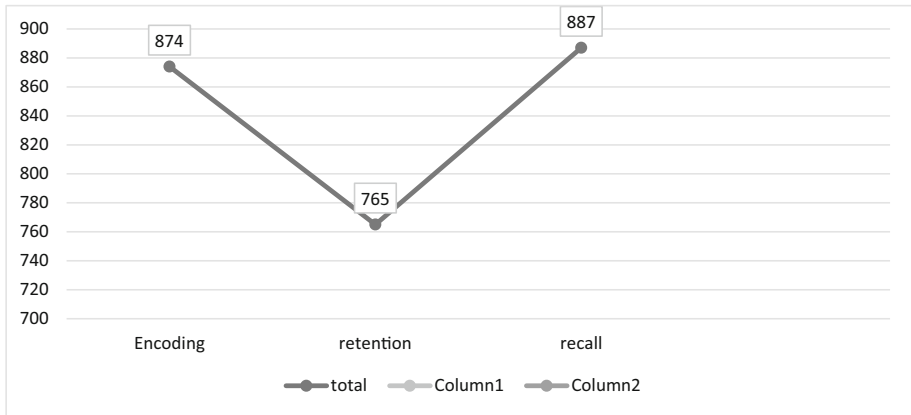
included *Kyai* and *tahfidz* teachers. The sources of this research data are 30 students who memorized the Qur'an. The observation method was carried out to collect primary data using a student assessment instrument (the practice of memorizing the Qur'an). While for secondary data (supporting data) using the interview method conducted with students and *tahfidz* teachers. Then the data is analyzed by (1) data reduction, (2) data presentation, and (3) conclusion drawing or data verification [26]. The first step in this research begins with making an observation instrument (Tables 1 and 2).

The next step is data collection, namely by determining the score to determine students' level of cognitive competence as measured through the five aspects above. The assessment used for each aspect is a score range between a score of 1 to a score of 4. The provisions for the assessment score are: 1 = never, 2 = ever, 3 = rarely, 4 = sometimes, 5 = always.

The next step is data analysis, which consists of three paths: data reduction, data presentation, conclusion drawing, or data verification [26]. Meanwhile, triangulation of sources and theories was carried out to test the validity of the data. Triangulation is essentially a multi-method approach that researchers use when collecting and analyzing data [27].

Table 3. Systemic Modelling Cognitivist for Memorizing Qur'an Indicator Score Results

Indicator	N	Mean	Median
Encoding	30	29,13	29
Retention/Storage	30	25,5	26
Retrieval/Recall	30	29,57	30

**Fig. 2.** Systemic Modelling Cognitivist for Memorizing Qur'an Result Percentage Indicator

3 Results and Discussion

3.1 Results

The data that is used as the basis for the description of this study results are the scores and the percentage results of the systemic modelling cognitive for memorizing the Qur'an. The data is processed using SPSS software to present descriptive statistics so that some descriptive data can be seen, including the number of respondents (N), the average price (mean), and the median value (median). Namely as shown in Table 3.

The result showed that the average ability of the students to emulate the memorization into their memory or encoding was in a reasonably good category: 29,1%. The contribution of the retention or storage indicator in this study was 25,5%. The contribution of the retrieval, or the recall indicator was 29,57. It is the highest from the encoding and retention or storage indicators.

Figure 2 shows that the percentage of indicators of systemic modelling cognitive for memorizing the Qur'an has a lower distribution tendency. Table 3 shows that the encoding indicator's average score (mean) is higher than the average score (mean) of the retention/storage indicator. Meanwhile, the mean score of the retrieval/recall indicator shows that the distribution of the scores is above the median score of the encoding and retention/storage indicators.

3.2 Discussion

The results showed that, in general, the average ability of the students to enter memorization into memory (encoding) was in the reasonably good category. The encoding contribution in this study was 29.13%. [28] Wu in his research stated that information can change to be stored in memory. There are three main ways in which information can be encoded in memory: through visuals (images), audio (sound), and semantics (meaning). The results of research [29] explain that the process of entering data, information, knowledge and experience of a person is included in the encoding indicator. The process is to absorb or record data by the five senses into the brain. In this situation, [30] Murray in his research explains that in terms of taste and movement, the subconscious changes shape at one time through visual (sight) and auditory (hearing). This is also in line with research [31] which states that when a child sees or hears, he uses his eyes and ears, both of which work well together to help retrieve that information into the brain. Children who memorize the Qur'an [24, 32, 33] in their research explain that the role of hearing and seeing in the process of memorizing the Qur'an is very important. So that in addition to the *makhraj*, he pronounces it according to the rules of *makharijul huruf* and *shifatul huruf* in the *tajwid* method, also so that he can pay attention to the teacher's lips when teaching the Qur'an to him.

The contribution of the retention/storage indicator in this study was 25.5%. This shows a lower distribution of the encoding indicator (memory recording). [34, 35], in their research, explain that after children record memorization in memory, they store the memorization in memory as well. [36] also states that this storage also includes the categorization of memorization. So the memorization is stored according to its category. Research [37] also reports that every memorization received by children will be stored in the memory storage of the human brain, which is stored in memories called memory traces, then reappears at a particular time.

Scholar explains [38] that after encoding/recording the memorization, children store the memorization at a different time. Similarly, [39, 40] also reported that memory storage involves three types of memory, namely sensory memory (memory that can absorb rote quickly), short-term memory or short-term memory (memory storage). Temporary memorization), and long-term memory (permanent memory storage). [41] Explains that the child's sensory system receives memorization, then stored for a moment. Furthermore, the memorization is passed on to short-term memory and stored for 15–25 s. The results of this study are also in line with research conducted by [20, 42, 43], which explains that memorization is passed back to long-term memory, which is permanent. Memorizing switches from short-term to long-term memory depending on the amount and type of exercise [44].

The contribution of the retrieval/recall indicator (repetition of memorization poured into the form of writing, speech, gesture, or just an image in the brain) in this study was 29.57. It shows a higher distribution of the encoding indicators (memory recording into memory) and retention/storage (memory storage into memory). Research conducted [45] revealed that after memorizing the Qur'an is stored in the brain, then the memorization of the Qur'an can be recalled.

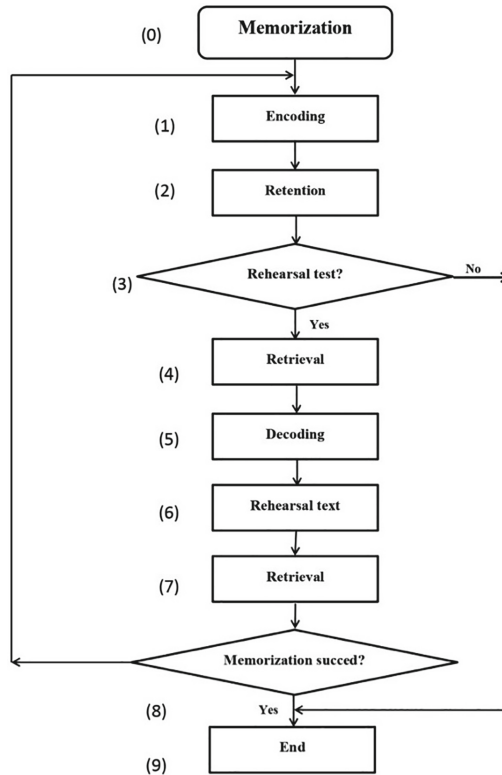


Fig. 3. The Systemic Cognitive Modelling for Memorizing Al-Qur'an in Indonesia

The findings of several previous studies stated that this memorization recall could be done through recall, recognition, relearning, and reintegration [46–48]. This strategy is based on the theory discussed in research conducted by [49], namely, retrieval/recall is the repetition of previously memorized memorization. The memorization can be call at any time when needed. The absence of a method or way to recall causes failure in recalling memorization [50]. Therefore, we need an appropriate method, method, or instructions [51]. One method that can be apply is tactics. For example, *takrir* alone, *takrir* in prayer, *takrir* together, and *takrir* in front of the teacher [52].

The following are the findings of the research above in the form of the stages of systemic cognitive modelling for memorizing the Qur'an, which is present using images so that they can be see clearly and in detail. The difference with the stages mentioned in Image 1 The cognitive process of memorization [18], namely systemic cognitive modelling for memorizing the Qur'an here, has 9 stages, while the cognitive process of memorization only has 7 stages (Fig. 3).

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4 Conclusion

The study found that children are good at memorizing the Qur'an. It also identified several stages involved in the process, including encoding, retention, rehearsal testing, retrieval, and decoding. If the rehearsal test is successful, the child moves to the next stage. If not, the child goes back to the initial stage of encoding. After successfully completing the rehearsal test, the child proceeds to the next stage until successful memorization is achieved.

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