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# The Effectiveness of Mind Mapping in Enhancing Students Learning Outcomes in Islamic Education

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### ABSTRACT

This study was conducted to evaluate the effectiveness of the mind mapping approach in enhancing students' learning in the subject of Islamic Education. The study involved 30 students in Year 3 from a primary school in the district of Tanah Merah, Kelantan. The problem arose from the need to improve students' comprehension and mastery of Islamic Education concepts, which were often considered less effective when taught using traditional teacher-centred methods. Based on observations, it was found that most students had difficulty concentrating during teaching and learning sessions, showed unsatisfactory responses to teacher's questions, and exhibited weak abilities to relate new information to prior knowledge. As a result, learning outcomes were uneven, and students' mastery of certain topics remained at a moderate level. Therefore, mind mapping was proposed as an innovative technique to help students organize and connect information visually, thereby increasing motivation and learning achievement. This qualitative with quantitative study used a quasi-experimental design involving an experimental group taught using the mind mapping method and a control group receiving traditional teaching. A pre-test and post-test approach was employed to measure changes in student achievement before and after the intervention during the teaching sessions. The quasi-experimental design was chosen because it fits the school context, which limits full random sampling implementation, yet it still provides strong evidence of cause-and-effect relationships. Data were analyzed descriptively to obtain mean, standard deviation, frequency values, and percentages. The findings showed that the experimental group recorded a significant improvement in achievement compared to the control group after learning with the mind mapping approach. These results support the hypothesis that mind mapping can enhance concept understanding and facilitate the teaching and learning process through visualization and better organization of information. The findings relate to visual learning and constructivist theories that emphasize active student involvement in building their own knowledge structures. It is clear that the mind mapping approach is effective in strengthening Islamic Education learning among students. The implication of this study is that teachers are encouraged to adapt mind mapping techniques in teaching to improve the quality of learning.

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## 1. Introduction

Education serves as an intermediary medium for the dissemination of knowledge [1]. It is also one of the crucial fields that significantly contributes to national development [2]. This notion is aligned with the context of education at the primary school level, which refers to a holistic and progressive learning process aimed at developing pupils' potential in terms of intellectual, emotional, spiritual, social, and physical aspects in accordance with the National Philosophy of Education. At the primary level, education emphasizes the mastery of basic literacy and numeracy skills, the formation of character and moral values, as well as the inculcation of noble values such as discipline, mutual respect, and responsibility.

According to Piaget's theory, Year Three pupils are at the concrete operational stage, in which they are capable of logical thinking; however, their reasoning remains closely tied to concrete objects and observable experiences. At this stage, the use of visual approaches such as mind mapping can effectively support pupils in visualizing the overall structure of a topic and understanding key elements in an organized and systematic manner. Teaching and learning processes are implemented through a pupil-centred approach, utilizing strategies that correspond to pupils' cognitive development stages, including activity-based learning, games, visual aids, and concrete learning experiences. Furthermore, primary education plays a vital role in fostering learning interest, creativity, and thinking skills to prepare pupils for more complex learning at higher educational levels. Teachers act as facilitators who support individual learning needs while creating a safe, engaging, and inclusive learning environment.

Islamic education is an obligation of parents and teachers and serves as a trust that must be borne by each generation and conveyed to subsequent generations through the role of educators in nurturing children [6]. At the primary school level, Islamic Education constitutes a fundamental foundation in shaping pupils' understanding of faith (aqidah), worship (ibadah), and moral conduct (akhlaq) from an early age. In this context, the teaching and learning (T&L) process must be conducted effectively, interactively, and in a comprehensible manner to ensure that Islamic concepts are thoroughly understood. Various stakeholders must play their respective roles to ensure that Islamic knowledge and values are effectively internalized by pupils. Therefore, teachers must function as competent facilitators who wisely select instructional strategies appropriate to pupils' developmental levels to ensure effective and enjoyable knowledge delivery.

The implementation of 21st Century Learning (PAK21) is regarded as one of the most effective approaches to be practiced [3]. Mind mapping is a learning method that enables pupils to become creative in generating ideas and organizing learning content [4]. Concept maps are viewed as innovative teaching aids that improve traditional teaching methods by promoting critical thinking skills [5]. This approach facilitates efficient information processing and enhances memory retention, as it mirrors the natural functioning of the human brain by integrating symbols, images, and keywords. Learning through mind mapping promotes meaningful learning, as it is engaging and encourages pupils to integrate prior knowledge with newly acquired knowledge to illustrate relationships among concepts. Consequently, pupils' understanding is strengthened, and their academic performance across subjects can be improved [6]. This approach is consistent with the principles of 21st century education, where teachers are encouraged to integrate visual and interactive strategies such as mind mapping, which have been proven to enhance comprehension, memory retention, creativity, and conceptual connections. Mind mapping also functions as an application that delivers meaningful information in a simplified and comprehensible manner.

Despite Islamic education being a core subject, various issues related to the effectiveness of teaching and learning persist, particularly among Year Three pupils. One prominent issue is pupils'

difficulty in understanding basic concepts, especially in the subject of Sirah, which involves abstract terminology that requires clear visual explanations. The lack of visually oriented teaching aids makes it challenging for pupils to identify relationships among key elements within a topic. Additionally, traditional teaching approaches that heavily rely on reading, memorization, and lecturing result in less interactive lessons and fail to capture pupils' interest. Consequently, pupils become passive and overly dependent on teachers' explanations, which negatively affects their motivation and attention during lessons. Moreover, pupils' cognitive development at this stage necessitates the use of visuals, colours, images, and structured content to facilitate comprehension. The absence of appropriate visual support can hinder pupils' mastery of Islamic Education content. Furthermore, teachers face challenges in implementing creative instructional strategies such as mind mapping due to limited exposure or training. Time constraints in preparing teaching materials also compel teachers to revert to traditional methods that are easier to implement. In light of these issues, research on the effectiveness of mind mapping is essential to support more interactive, meaningful, and pupil-centred Islamic Education instruction.

This study aims to achieve two main objectives, as follows: (i) to compare the learning outcomes of pupils taught using mind mapping with those taught using traditional instructional methods and (ii) to examine pupils' perceptions of the use of mind mapping in the teaching and learning of Islamic Education.

## 2. Methodology

The qualitative with quantitative study approach is the design underlying this study [7]. This study was carried out using a quasi-experimental design, which involves experiments but does not involve random or fully controlled sample selection by comparing two groups (experimental group and control group) to see the effects of using Mind Mapping on students' academic achievement.

The quasi-experimental design in this study was used to find out and compare the effects of using Smart Mind Map on the experimental group who were taught using the mind mapping method while the control group who received traditional teaching based on academic achievement using pre-post tests with unbalanced groups [8]. The pre-post test approach was used as a measurement tool to assess changes in student achievement before and after the intervention was made during the teaching and learning (T&L) process.

**Table 1**

Quasi-experimental research design

Group	Pre-Test	Mind Map Usage	Post-Test
Experimental Group (15 Students)	✓	✓	✓
Control Group (15 Students)	✓	-	✓

A sample of 30 Year 3 students will be selected from a primary school in Tanah Merah, Kelantan through purposive sampling. The study sample consists of two classes, namely Year 3 B and Year 3 C. Two existing classes that have almost the same level of academic achievement will be selected: the Experimental Group (15 students) was taught using various mind maps guided by the teacher, with students encouraged to create their own based on individual creativity. While Control Group (15 students) was taught using traditional methods without mind mapping. This approach ensured a fair comparison between the two groups.

## 2.1 Research Instruments

### 1. Pre-Test & Post-Test

The pre-test was administered before the introduction of mind maps to evaluate the effectiveness of mind mapping between the experimental and control groups. The post-test was constructed based on the same question format as the pre-test. It was crucial in determining the effectiveness of mind mapping on student performance in Islamic Religious Education. The test items consisted of 10 objective questions focusing on the topic the names of the prophets and their scriptures.

**Table 2**  
Percent and achievement grade

Percent	Grade	Achievement
82-100	A	Excellent
66-81	B	Credit
50-65	C	Good
35-49	D	Satisfactory
20-34	E	Minimum Achievement
0-19	F	Below Minimum Achievement

Source: Kementerian Pendidikan Malaysia (KPM)

### 2. Student Perception Questionnaire

A questionnaire with Yes and No responses answer option was given to students to assess their perceptions of the mind mapping approach. It also gathered information on attitudes and experiences related to mind mapping in Islamic Religious Education. It also measured students' interest, motivation, enjoyment, understanding and level of involvement throughout the learning process. Data was analyzed in terms of frequency and percentage to illustrate the general tendency of student responses.

## 2.2 Research Procedure

This quasi-experimental study design was implemented according to a systematically planned procedure. At the initial stage, all respondents were briefed on the purpose and methods of the study. Next, a pre-test was conducted a week before the intervention to obtain an initial picture of the students' mastery of the selected topic.

After that, the Islamic Education teaching and learning (T&L) activities were conducted for a week with continuous monitoring by the teacher. The experimental group was taught using the mind map approach, while the control group was taught using the traditional textbook-based method without using mind maps.

Finally, both groups underwent a post-test built based on the pre-test format. This test aimed to evaluate the changes in students' academic achievement after following their respective teaching methods.

### 3. Results

This section discusses the results of the application of the Mind Mapping method in learning is designed to help students understand and remember the material more effectively. The Experimental Group consisted of 15 students who were taught using mind mapping method and Control Group also consisted of 15 students who were taught using traditional method.

**Table 3**

Pre-test and post-test scores for the experimental group and the control group

Group	Grade	Pre-Test		Post-Test	
		Num of students	Percent (%)	Num of students	Percent (%)
Experimental N = 15	A	-	-	8	53.33
	B	10	66.67	6	40
	C	4	26.67	1	6.67
	D	1	6.67	-	-
Control N = 15	A	-	-	-	-
	B	-	-	7	46.67
	C	9	60	7	46.67
	D	3	20	1	6.67
	E	3	20	-	-

The results of pre-test and post-test data compare performance between an experimental group (N=15) and a control group (N=15). Experimental group mean scores improved from 67.8 (SD=11.15) pre-test to 82.7 (SD=10.45) post-test, while control group scores rose from 49.3 (SD=12.24) to 62.3 (SD=9.46). Grade distributions shifted notably in the experimental group, with 53.33% achieving a post-test versus none pre-test.

Grade distributions highlight targeted improvements in higher categories for the experimental group: pre-test had 66.67% (10 students) in B and 26.67% (4 students) in C, shifting post-test to 53.33% (8 students) in A and 40% (6 students) in B, eliminating D grades. The control group post-test peaked at 46.67% (7 students) in B with lingering lower grades (C: 46.67%, D: 6.67%), showing less upward mobility from its pre-test concentration in C (60%, 9 students).

**Table 4**

Mean score and standard deviation

Test	Experimental Group N = 15		Control Group N = 15	
	Mean Score	Standard Deviation	Mean Score	Standard Deviation
Pre-Test	67.8	11.15	49.3	12.24
Post-Test	82.7	10.45	62.3	9.46

The experimental group demonstrated substantial improvement (mean gain of 14.9 points) compared to the control group's gain of 13 points, suggesting intervention effectiveness, though both groups advanced. Reduced standard deviation post-test in both groups indicates tighter score clustering, potentially from shared learning effects. Higher baseline experimental scores may reflect selection bias, future studies could include effect size calculations like Cohen's d for deeper inference. Limitations involve small sample size and undefined grading scale, warranting larger replications.

**Table 3**  
 Student perception questionnaire

BIL	ITEM	YES	NO
1.	The mind map method enhances my interest in engaging with course content.	100%	0%
2.	The use of mind maps has assisted in my deeper comprehension of a topic.	73%	27%
3.	Learning with mind maps is found to be both easy and engaging.	100%	0%
4.	I am more interested in studying Islamic Education by using mind mapping method.	87%	13%
5.	I am able to recall the names of the prophets and their scriptures after using mind mapping method.	67%	33%

Overall, the findings show that students held highly favorable views of the mind map method in learning Islamic Education. All respondents indicated that the mind map method enhanced their interest in engaging with course content (Item 1, 100% “Yes”), and likewise all students agreed that learning with mind maps was both easy and engaging (Item 3, 100% “Yes”). These results suggest strong acceptance and perceived usability of mind mapping as an instructional technique among the sampled students.

The data also indicate positive but more varied perceptions of comprehension, motivation, and recall. A clear majority of students reported that mind maps assisted them in developing a deeper understanding of the topic (Item 2, 73% “Yes”), while 27% did not perceive such benefits. Furthermore, most respondents agreed that mind mapping increased their interest in studying Islamic Education (Item 4, 87% “Yes”), with only a small minority disagreeing (13% “No”). Finally, just over two-thirds of students indicated that they were better able to recall the names of the prophets and their scriptures after using mind maps (Item 5, 67% “Yes”), compared to one-third who did not report improvement in recall (33% “No”).

The strong endorsement of mind mapping for interest and engagement supports existing literature that highlights visual and nonlinear mapping techniques as effective for creating more active and student-centred learning environments [9]. The unanimous agreement on Items 1 and 3 suggests that, at least for this group of learners, mind maps reduce perceived difficulty and increase enjoyment, which are critical affective components linked to sustained learning effort in religious education contexts [10]. From a pedagogical perspective, these findings imply that integrating mind maps into Islamic Education lessons may promote a more interactive classroom climate and foster positive attitudes toward the subject.

The results relating to comprehension and recall are also consistent with studies showing that concept mapping and mind mapping can improve understanding and memory by helping students organize and connect key ideas [11]. The fact that 73% of students perceived deeper comprehension and 67% reported better recall suggests that the technique effectively supports many learners in dealing with factual and conceptual content such as the names of prophets and their associated scriptures. At the same time, the presence of a substantial minority who did not experience these benefits points to the need for differentiated instruction and further scaffolding; some students may require explicit modeling of how to construct and use mind maps, or benefit from combining mind mapping with other strategies such as summarizing or retrieval practice [12].

The increase in interest in Islamic Education reported by 87% of respondents indicates that mind mapping not only supports cognitive outcomes but may also serve as a motivational tool. This aligns with research suggesting that learner-generated visual representations can enhance autonomy, curiosity, and perceived relevance of learning materials [13,14]. However, because 13% of students did not find mind maps more motivating, teachers should avoid treating the method as universally

effective and instead offer it as one option within a broader repertoire of instructional strategies. Future studies could employ experimental or mixed-methods designs to triangulate these self-reported perceptions with performance data and qualitative insights, thereby providing a more robust understanding of how and for whom mind mapping is most beneficial.

#### 4. Conclusions

In conclusion, the findings demonstrate that the mind mapping method substantially enhances students' learning in Islamic Education, as reflected in marked gains in mean test scores for the experimental group compared to the control group, upward shifts in grade distributions, and strong student endorsement of mind maps as interesting, easy to use, and helpful for comprehension, motivation, and recall. The convergence between quantitative outcomes and students' positive perceptions indicates that mind mapping not only supports cognitive outcomes such as deeper understanding and better memory of prophets and their scriptures, but also promotes affective benefits including greater engagement and interest in the subject. These results, which align with prior literature on visual mapping strategies, suggest that integrating mind maps into religious education can foster more interactive, student-centred learning environments, although the small sample size and reliance on self-report highlight the need for further research with larger cohorts and more rigorous experimental designs.

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