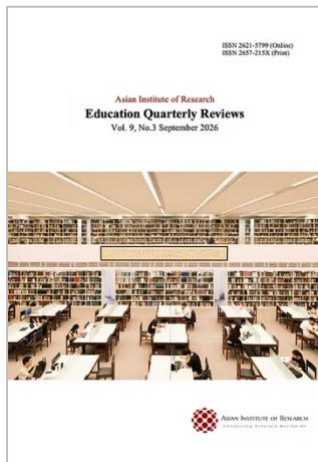




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The Degree of Practice of Islamic Education Teachers in Karak Governorate for Their Roles in Light of Cognitive Load Theory

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Abstract

This study aimed to examine the extent to which Islamic Education teachers in Al-Karak Governorate perform their instructional roles in accordance with Cognitive Load Theory. It also explored whether these practices vary according to teachers' gender, academic qualification, and years of teaching experience. The study employed a descriptive–analytical research design and utilized a questionnaire developed by the researcher as the primary data collection instrument. The questionnaire comprised 30 items organized into three dimensions: intrinsic cognitive load, extraneous cognitive load, and germane cognitive load. Its validity and reliability were established prior to administration. A simple random sample of 235 male and female teachers of Islamic Education in Al-Karak Governorate during the 2025–2026 academic year participated in the study. The results revealed that teachers' perceived level of practicing their instructional roles in light of Cognitive Load Theory was moderate. Of the three dimensions, intrinsic cognitive load ranked highest, followed by extraneous load, while germane load ranked lowest. Furthermore, the results revealed no statistically significant differences in teachers' implementation of their instructional roles based on gender, academic qualification, or years of teaching experience. In light of these findings, the study proposed several recommendations. Most notably, it emphasized the need for the Ministry of Education to provide specialized professional development programs that equip teachers of Islamic Education with strategies grounded in Cognitive Load Theory. The study also recommended conducting further research to examine the effectiveness of curriculum units designed according to Cognitive Load Theory and their impact on students' academic achievement and critical thinking skills in Islamic Education.

Keywords: Degree of Practice, Teachers of Islamic Education, Cognitive Load Theory

1. Introduction

The rapid expansion of knowledge represents one of the foremost challenges to education in the twenty-first century, placing increasing demands on learners' working memory. Consequently, the theory of cognitive load has emerged as a theoretical foundation for understanding how the human mind processes and stores information efficiently. It asserts that effective learning occurs when instructional materials are designed to balance three types of cognitive load: **intrinsic** load, which relates to the complexity of the material; **extrinsic (extraneous)** load,

which relates to poor material design; and cognitive (**germane**) load associated with meaningful learning that builds cognitive schemas (Al-Atoum, 2004).

This theory is of great importance in all academic subjects, especially in Islamic Education, which is characterized by the depth and complexity of its content—ranging from the interpretation of the Holy Quran and the Prophetic Sunnah, to lessons on Islamic creed, including the Islamic conception of the universe, humanity, and life, to the legal rulings concerning the actions of accountable individuals, and extending to the derivation and practical application of moral values. Presenting this intricate content in a traditional manner may accumulate external cognitive load, hinder deep understanding, confine learning to rote memorization and recitation, and prevent the development of thinking skills; thereby widening the gap between theory and reality (Al-Fayl, 2015). Effective teaching extends beyond the mere transmission of information; it aims to achieve meaningful learning outcomes and foster desired changes in students' knowledge and behavior; This has added new roles to the Islamic education teacher, enabling them to create an interactive learning environment in the classroom to effectively bring about the desired changes in student behavior (Al-Dihyan, 2001).

2. Statement of the Problem

Cognitive load constitutes a major barrier to achieving intended educational outcomes in various study subjects. (Fadel, 2014) attributed the reason for this to teaching being based on traditional teaching methods that continuously present information to students, with the students' role limited to listening and memorizing the information presented to them, neglecting their thinking skills; this may hinder the understanding, encoding, processing, and storage of information in working memory. This was confirmed by the study of Hammad (2004), which found that the teaching methods used by Islamic education teachers cause weakness in students' interaction with their teachers, and at the same time do not keep pace with what modern trends in teaching methods recommend. In contrast, the results of the Tracy (2004) study showed that time pressure, stress, and the abundance of information presented in the textbook led to the occurrence of cognitive load, while the study of Si & Kim (2011) presented a solution to this through presenting instructional materials sequentially from simple to complex, which leads to reducing cognitive load among students.

The discrepancy between the complexity of Islamic Education content and students' cognitive processing capacity may exceed learners' abilities if not managed effectively. This is especially true if teachers do not do their jobs in a way that helps students learn without getting too confused. So the issue with this study is that we do not really know how well teachers of education in Jordan are doing their jobs when it comes to helping students learn. We also need information about this topic, especially in the Karak Governorate area. To understand the issue, we need to answer some questions about education and how teachers are doing their jobs in relation to how students learn⁶

1. To what extent do Islamic Education teachers in Al-Karak Governorate practice their instructional roles in accordance with Cognitive Load Theory?
2. Are there any statistically significant differences ($\alpha \leq 0.05$) in the extent to which Islamic Education teachers practice their instructional roles in accordance with Cognitive Load Theory based on gender, educational qualification, and years of teaching experience?

3. Objectives of the Study

The primary objectives of this study are:

1. To assess the degree to which Islamic Education teachers in Al-Karak Governorate apply Cognitive Load Theory within their instructional practices.
2. To determine whether significant differences exist in teachers' self-perceptions of their practice based on demographic variables such as gender, experience, and educational background.

4. Significance of the Study

The significance of the study lies in two aspects: theoretical and applied, which serve both the scientific and practical fields for Islamic education teachers:

Theoretical Significance: The study may contribute to providing a theoretical framework on cognitive load theory and how to employ it in Islamic education, which is considered an important approach that contributes to developing the learner's personality in a balanced manner and developing his thinking skills through applying the principles of the theory in a way that achieves positive results in learning, and contributes to developing students' thinking and learning by defining teachers' roles in light of this theory.

Applied Significance: This study may provide Islamic education teachers with a practical work framework and clear practical steps to redesign their lessons and activities in a way that reduces distraction and focuses on deep understanding according to cognitive load theory, by clarifying the roles of Teachers in the field of Islamic Education in light of the theory. The findings are also expected to yield actionable recommendations for curriculum designers and practitioners in Islamic Education so that the principles of cognitive load management are adopted when designing textbooks and their accompanying instructional aids.

5. Terms of the Study

Study Terminology: This study uses the following terms:

- Islamic Education Teacher: A teacher appointed by the Ministry of Education and tasked with teaching Islamic Education in schools within the Karak Governorate for the 2025–2026 school year.
- Cognitive load: The amount of mental effort expended by a learner's working memory to process new information; this effort is measured based on the limited capacity of working memory (Sweller, 1980).
- Teachers' Roles in Cognitive Load: The instructional strategies employed by Islamic education teachers to address extrinsic load, control intrinsic load, and manage learning-related load in order to direct students' mental effort toward understanding and effective application (Van Merriënboer, J. J. G., & Sweller, J., 2005). These can be defined procedurally as the roles related to managing intrinsic load, managing extrinsic load, and managing learning-related load performed by Islamic education teachers, which are measured using a tool designed for this purpose.

6. Limits and Delimitations of the Study

Human Limitations:

The study is limited to a sample of male and female Teachers in the field of Islamic Education in schools affiliated with Karak Governorate.

Temporal Limitations:

The study was conducted during the second semester of the academic year (2025/2026).

Spatial Limitations:

The participants in this study consisted exclusively of male and female Islamic Education instructors in Al-Karak Governorate.

Delimitations of the Study:

The generalization of the study results is determined by the reliability and validity of the study instrument and by the extent to which the study sample responded accurately to the instrument items.

7. Theoretical Framework

Cognitive load theory was developed by John Sweller and his colleagues, and sought to explain how memory works during learning, and the teacher's role in effectively organizing students' learning with a good impact. This theory refers to the total amount of mental activity in working memory at a given time, and the number of elements that must be attended to; this means that there is an upper limit of cognitive elements that memory cannot exceed at once. When the cognitive elements to be remembered are between (5-8) elements, the task is recallable if the learner exerts some effort, but when their number reaches more than (10) elements, the task becomes difficult for

most learners, and distracts the learner's mind, especially if the way the instructional material was presented was inappropriate, and causes difficulty in the material; and this forms what is called cognitive load (Abu Riyash, 2007).

Cognitive load refers to the set of mental activities that occupy the capacity of working memory during a certain time (Sweller, 2008), and (Cooper, Ford, Chandler, Sweller, 1998) added that it is the total amount of mental activity in working memory over a certain time, measured by the number of cognitive units or elements, and it is divided into three overlapping types, referred to by (Sweller, 2008), which can be projected onto the Islamic education subject, namely:

Intrinsic Load: The burden resulting from the difficulty and complexity of the content and the degree of interconnection of its elements in Islamic education, and it is related to the extent of the difficulty of jurisprudential or creedal concepts, their complexity, and the interconnection of their elements.

Extraneous/External Load: The burden resulting from poor design of materials or the use of inappropriate teaching strategies that do not achieve learning outcomes and lead to student distraction, such as unnecessary repetition or unclear instructions.

Load Related to Internal (Germane) Learning: The organized burden of exploiting students' abilities in designing and building cognitive schemas in long-term memory, thereby achieving deep understanding with the possibility of applying it.

Cognitive load theory divides knowledge into primary and secondary. Primary knowledge refers to knowledge that is learned and acquired through social interaction and the reality into which the individual was born, such as speaking the mother tongue, routine social relationships, and the skills that individuals use in solving problems they face. As for secondary knowledge, it includes: knowledge that the individual acquires through exerting significant mental and cognitive effort, and it is intentional knowledge, and is the focus of cognitive load theory, which sought to establish a mechanism for processing information according to principles on which this theory is based, represented in information storage, borrowing and cognitive reorganization, incidental (creative) production, narrow limits of change, and linking and organizing the environment (Sweller & Sweller, 2006).

The huge amount of information that students receive may harm their working memory, impair its functioning, and weaken its ability to perform its required role, and this may make students feel failure and lower their self-confidence, due to the abundance and overlap of information that requires students to attend to and process it within a specific time, as working memory bears the burden of processing large and complex information at once, which limits its ability to do so, and imposes on it a cognitive load that affects the effectiveness of learning. Also, not giving the learner enough time to think about the material presented to him limits his ability to employ that information in solving the problems and situations he encounters. Here appears the importance of cognitive load theory, which uses scientific methods to reduce the level of cognitive load on working memory, and increases the effectiveness of the teaching and learning process, leading students towards theoretical thinking and creativity, and applied grounding in various fields of science and knowledge (Abdel Hadi, 2010).

Cognitive load theory is based on rules that reduce the cognitive load on the learner through analyzing information and defining parts, using interconnected presentations, deleting repeated information, organized exploration of the issues or questions presented instead of repetition, presenting effects and the audio narrative simultaneously rather than sequentially, and presenting worked examples as alternatives to the conventional problem agreed upon in existing teaching (Abu Riyash, 2007).

Cognitive load theory also sought to develop the learning process by presenting an organized and effective instructional design that does not lead to an overload on working memory during the individual's learning process, and providing curriculum designers with solid foundations that enable them to build the curriculum according to scientific bases, and working to reduce extraneous cognitive load to save learning time and mental effort in the

learning process instead of depleting his abilities, and paying attention to repeated training to increase his ability to understand the content (Kalyuga, 2006).

What distinguishes cognitive load theory is that it improves teachers' performance, because it drives them to draw various pictorial and semantic cognitive schemas and different meanings and their uses in classroom learning situations, and to use strategies that link knowledge together with relationships that contribute to transferring useful experiences to learners (Qatami, 2013).

The Islamic education teacher can reduce the extraneous load resulting from a defect in material design by applying several principles, including the duality principle and temporal and spatial approximation, so the teacher avoids presenting the same information in two different forms at the same time, such as presenting words associated with the picture simultaneously rather than sequentially to ensure their joint processing in working memory. Also, the coherence principle by removing any unnecessary or distracting information, graphics, or attractive images, and the principle of fully worked examples for new learning instead of having students solve problems, such as presenting fully solved jurisprudential problems, and giving them similar problems to enable them to build cognitive schemas and reduce cognitive load (Al-Otaibi & Mustafa, 2017).

As for managing intrinsic load, the teacher can reduce the load resulting from content complexity through the segmentation principle by dividing the lesson into interconnected topics presented sequentially, such as dividing the prayer lesson into sequential topics, providing appropriate time to understand the sub-topic before moving to the next topic. The teacher also relies on the pre-training/advance organizer principle, so that the transition is from more general concepts to less general concepts to achieve an organized hierarchical structure of concepts, and then moving to the details of sub-rulings, such as the conditions of validity of prayer and its pillars, to link new knowledge with old knowledge in a coherent manner that achieves an organized hierarchical structure of information. The teacher also activates guided and deep discussion by asking interpretive questions that require the learner to think and analyze, such as: " Why did Islam prohibit cheating? And how can we avoid it? Instead of the teacher being content with asking the learner what the ruling is on cheating in Islam (Abu Riyash, 2007).

The teacher can reduce the load related to learning (germane load) by gradually moving from presenting fully worked examples to the learner solving problems himself, and also activating prior schemas, through prior comparison, summarization, or guided discussion that leads the learner to link new information with old information, to achieve the construction process in the learner's long-term memory (Abu Ghouri & Sheldan, 2025). This can be done through solving jurisprudential problems related, for example, to analogy (qiyas), which is one of the sources of Islamic legislation; for example, if the teacher gives a worked example about wine in terms of its ruling and the reason for its prohibition, he directly assigns students to solve similar problems such as drugs, so that the learner reaches its ruling, and knows that the reason for the prohibition of drugs is the same as the reason for the prohibition of wine, in that both impair the mind.

The teacher can work on adapting cognitive load when assessing and following up on students through tests that lead the learner to apply the Sharia ruling to cases he has not previously dealt with, and providing organized feedback so that the notes are specific and focused on the errors that prevent the learner from building the hierarchical schema. To ensure success, the teacher must conduct short diagnostic tests at the beginning of the topic to determine the learner's prior knowledge; if it is weak, the teacher reduces the complexity of the subsequent topic to lower intrinsic load.

8. Previous Studies

In light of the scarcity of previous studies dealing with the topic of the study, several previous studies related to cognitive load theory, which are relevant to the topic of the current study, were reviewed, and the following is a presentation of these studies.

Al-Zahrani (2024) conducted a study that aimed to identify the extent of the effectiveness of using methods of reducing cognitive load in teaching at the childhood stage. The study used the descriptive analytical approach; the

study sample, selected by the simple random method, consisted of 100 kindergarten teachers in the schools affiliated with the cities of Abha and Khamis Mushait. The results found the effectiveness of using methods of reducing cognitive load in achieving positive learning outcomes, such as practicing drawing cognitive schemas and linking knowledge with relationships, to transfer experiences to children, and recommended the necessity of adopting the principles, methods, and strategies of reducing cognitive load in teaching the kindergarten curriculum. Al-Otaibi and Mustafa did a study in 2017. They wanted to see if using a formality strategy based on cognitive load theory would help year secondary female students in Saudi Arabia do better in the jurisprudence subject. The study used an approach called quasi-experimental. What they found out was that using a formality strategy based on cognitive load theory really helped year secondary female students do better in the jurisprudence subject. Al-Otaibi and Mustafa found that this strategy was effective for these students. The students were in Saudi Arabia. The subject was jurisprudence. Al-Otaibi and Mustafa looked at how the students did, after using the formality strategy based on cognitive load theory. The result was that the students did better in jurisprudence.

Bishay's (2016) study aimed to investigate the effectiveness of using instructional scaffolding in developing engineering problem-solving skills and reducing cognitive load among a group consisting of 62) students of second-year preparatory students in Assiut city, divided into two groups: one experimental and the other control. After conducting the research experiment, a test of engineering problem-solving skills was applied, and the NASA cognitive load scale was used. The research results revealed a statistically significant effect of using instructional scaffolding in developing engineering problem-solving skills and reducing cognitive load.

Al-Harithi's (2014) study investigated the relationship of cognitive load with perceptual skills represented in auditory perception, visual perception, mental perception, and motor perception, among sixth-grade primary students, and the sample consisted of 120 sixth-grade students with academic learning difficulties in various schools in the Riyadh region. The study found a statistically significant negative relationship between students' scores on the cognitive load scale and their scores on the various perceptual skills scale, and recommended the necessity of reducing cognitive load for students with learning difficulties or attempting to provide solutions to develop variables related to cognitive load, such as working memory and long-term memory.

Amadiou, Marine & Laimay (2010) conducted a study that aimed to reveal the effect of directing attention to high-content and low-interactivity elements of instructional material in reducing cognitive load during learning. The study used the quasi-experimental approach, and the sample consisted of 68 male and female students from the psychology department at the University of Toulouse in France. Participants were divided into two experimental groups: one group was presented with a surgical procedure without directing students' attention to the elements of the instructional material, while the second experimental group was shown the surgical operation with directing students' attention to the elements related to the instructional material. The study used the Paas scale to measure cognitive load, and the results revealed a decrease in the level of cognitive load when directing students' attention towards interactive elements, and an increase in cognitive load when students' attention was not directed to the elements of the instructional material.

Tracy did a study in 2004 to see how much load primary stage students had. Tracy used a way of studying that looks at things and tries to understand them, and Tracy picked one hundred students, boys and girls, to be in the study. The study by Tracy found that there are a lot of things outside of school that affect a student's load, like the science books and materials that the student can use, how tired the student is, and how long it takes to finish the work. These things, like the science materials and the time to finish the work, and the tiredness, play a part in making cognitive load higher or lower for students. For the students in the study, according to Tracy, the cognitive load is affected by these things.

Abu Jouda (2004) conducted a study that investigated the effect of using a teaching-learning program derived from cognitive load theory in developing critical thinking skills among a sample of tenth-grade basic students in Zarqa Governorate in Jordan. To achieve the study's objective, the quasi-experimental approach was used, and 88 male and female students were selected from schools in Zarqa Governorate, where a teaching-learning program based on cognitive load theory was built. The results showed the effectiveness of the teaching-learning program derived

from cognitive load theory in developing critical thinking skills among a sample of tenth-grade basic students in Zarqa Governorate in Jordan.

9. Comments on Previous Studies

Previous studies varied; some of them studied the effect of modern programs and strategies on reducing cognitive load, using the quasi-experimental approach, such as the study of Al-Otaibi & Mustafa (2017), the study of Abu Jouha (2004), and the study of Bishay (2016). Others sought to measure the level of cognitive load among students using the descriptive analytical approach, such as the study of Al-Zahrani (2024) and the study of Amadiou, Marine & Laimay (2010). Others investigated the relationship between cognitive load and other variables using the descriptive correlational approach, such as the study of Al-Harithi (2014).

Regarding the results reached by previous studies, some of them showed the effectiveness of modern strategies in reducing cognitive load, such as the study of (Jaber, 2016) and the study of (Amadiou, Marine & Laimay, 2010), and others showed the effect of some variables on increasing cognitive load, such as the study of (Tracy, 2004), which showed that the scientific material available to the student, mental fatigue, and the time taken to complete the task are among the factors that control the level of cognitive load, and the study of (Al-Zahrani, 2024), which showed the effectiveness of using methods of reducing cognitive load in teaching at the childhood stage.

The study benefited from these studies in enriching the scientific material of the current study, designing the study instrument, and drawing on the results of a number of these studies to formulate the problem of the current study, while the current study was distinguished from previous studies in that it investigated the degree of practice of Islamic education teachers in Karak Governorate for their roles in light of cognitive load theory, as no study addressing the topic of the study was found — to the extent of the researcher's review of the literature.

10. Methodology and Design

Study Methodology: The study adopted the descriptive analytical approach for its suitability to the nature of the study.

Study Population: The study population consisted of all Islamic education teachers in Karak Governorate for the academic year (2025/2026), numbering 756 male and female teachers, according to the statistics of the directorates of education in the governorate.

Study Sample: The study sample, selected by the simple random method, consisted of 235 participants, where 250 questionnaires were distributed, 242 of which were retrieved, and after entering the data, 7 questionnaires were excluded for being unsuitable for analysis. Thus, the sample subject to analysis consisted of (235) male and female teachers, at a rate of (31.08%) of the study population, and Table 1 shows the characteristics of the study sample according to the variables of gender, academic qualification, and years of experience.

Table 1: Distribution of study sample members according to their variables

Variable	Category	N	Percentage (%)
Gender	Male	108	46.0%
	Female	127	54.0%
	Total	235	100.0%
Academic Qualification	Bachelor's	161	68.5%
	Postgraduate Studies	74	31.5%
	Total	235	100.0%
Years of Experience	5 years or less	49	20.9%
	6-10 years	125	53.2%
	More than 10 years	61	26.0%
	Total	235	100.0%

Study Instrument: To achieve the objective of the study, the study instrument was developed based on the relevant theoretical literature and previous studies, such as the study of (Abu Ghouri & Sheldan, 2025) and the study of (Al-Otaibi & Mustafa, 2017), where the instrument in its initial form consisted of a questionnaire containing (30) items on the degree of practice of Islamic education teachers for their roles in light of cognitive load theory.

11. Validity of the Instrument

The validity of the instrument was verified by two methods, namely:

First: Validity of the arbitrators (jury validity): The questionnaire was presented to (10) specialized arbitrators in the specializations of curriculum and instruction, and supervisors of the Islamic education subject, to verify its ability to achieve its intended purpose, and to ensure the clarity and soundness of the wording of the items and their validity for measuring what they were designed to measure, and to make any modification of deletion, addition, or rewording of items and their suitability to the topic. Based on the arbitrators' modifications to the items of the study instrument, with an agreement rate of (80%) of the arbitrators, this was considered an indicator of the validity of the items. The arbitrators' observations were taken into account. The required and appropriate modifications were made, and the questionnaire settled in its final form on (30) items, distributed across three domains, namely: intrinsic load, extraneous load, and germane load.

Second: Internal Consistency Validity

Internal consistency was assessed to verify the reliability of the research instrument. To do this, we used a method that checks how well the different parts of the instrument work together. This method is part of making sure the instrument is really measuring what it is supposed to measure. We looked at how well each question on the questionnaire matched up with the rest of the questions in that section and with the score. We tried this out with a group of 30 teachers, both men and women, from the same group of people we were studying, and from outside of that group. The results are shown in Table 3)

Table 3: Correlation coefficients of items with the domain and the total score of the questionnaire

Item No	Correlation with Domain	Correlation with Total	Item No	Correlation with Domain	Correlation with Total
First Domain: Managing Intrinsic Load					0.668**
1	0.483**	0.327*	6	0.673**	0.456**
2	0.727**	0.556**	7	0.653**	0.444**
3	0.587**	0.624*	8	0.575**	0.504**
4	0.642**	0.317*	9	0.624**	0.509**
5	0.894**	0.728**	10	0.929**	0.757**
Second Domain: Extraneous Load					0.796**
11	0.910**	0.724**	16	0.832**	0.747**
12	0.814**	0.716**	17	0.889**	0.732**
13	0.823**	0.710**	18	0.737**	0.767**
14	0.888**	0.675**	19	0.849**	0.653**
15	0.883**	0.695**	20	0.898**	0.753**
Third Domain: Germane Load					0.665**
21	0.871**	0.590**	26	0.831**	0.467**
22	0.804**	0.552**	27	0.865**	0.571**
23	0.741**	0.664**	28	0.825**	0.654**
24	0.742**	0.657**	29	0.775**	0.631**
25	0.669**	0.632**	30	0.564**	0.769**

*The results are important at the level we care about *they are really important at a strict level.

Table 3 shows that all the connections between the study tool and the category, as well as with the total score of the tool, were important at the level we care about, where the connections between the items and the total score of the questionnaire were between 0.317 and 0.769. The connections between the items and the category they belong

to were between 0.456 and 0.910. The connections between the categories and the total score of the tool were between 0.665 and 0.796. This shows that the questionnaire is a measure of what it is supposed to measure, and it makes the results of the questionnaire more reliable. The questionnaire is a tool because all the questionnaire parts are connected to the total score of the questionnaire and to the category of the questionnaire, which is what we want to see in a good study tool, like the questionnaire.

12. Reliability of the Study Instrument

To see if the study tool was good, we tried it out with a group of thirty teachers, both men and women, from the main group of people we were studying and from outside of it. We wanted to make sure it was reliable. We used something called the Cronbach's alpha equation to check this. The results are shown in Table 2. This table shows how reliable the study tool is for each part and for the thing. We looked at the study tool to see if it was working well for each domain and for the study tool as a whole. The study tool was checked to make sure it was giving us information.

Table 2: Reliability coefficient values for each domain and for the instrument as a whole using the Cronbach's alpha equation

Domain	Cronbach's Alpha Coefficient
Managing Intrinsic Load	86%
Managing Extraneous Load	82%
Enhancing Germane Load	83%
Total	87%

The results in Table 2 show that the reliability of the instrument is pretty good. We used the Cronbach's alpha method to check this. The results for each part of the instrument ranged from 82% to 86%. For the instrument, the result was 87%. The researcher Odeh said in 2014 that these numbers are good enough for what we're trying to do in this study.

13. Scoring of the Study Instrument

The five-point Likert scale was adopted for scoring the instrument, giving each item one degree out of its five degrees (I practice it to a very great degree, I practice it to a great degree, I practice it to a moderate degree, I practice it to a small degree, I do not practice it at all), representing numerically (5, 4, 3, 2, 1) respectively, and the following criterion was adopted in judging Islamic education teachers' estimates of their degree of practice of cognitive load management strategies (Odeh, 2014):

Criterion for judging arithmetic means:

1.00–2.33: Low degree

2.34–3.67: Moderate degree

3.68–5.00: High degree

I came up with this estimate by taking the score, which is 5, and breaking it down into three parts that are all the same size. These parts are based on a scale that goes from 1 to 5. To figure this out, I used a math problem. I took the answer choice from the study and subtracted the lowest answer choice from the study. Then I divided that number by the number of categories, which are high, moderate, and low. This is similar to what Odeh did in 2014:

$$\frac{N-1}{3} = \frac{5-1}{3} = 1.33$$

14. Statistical Treatment

The Statistical Package for the Social Sciences, which we call SPSS, helped us find answers to our study questions using statistical methods. The following outlines the procedure used in this study:

To answer the question, we calculated the average and standard deviation.

For the question, we used a three-way multivariate analysis of variance, or MANOVA for short, and the Statistical Package for the Social Sciences, which is SPSS.

Presentation and Discussion of Results

Results Related to the First Question

What is the degree of practice of Islamic education teachers in their roles in light of cognitive load theory?

To answer the question, arithmetic means and standard deviations were calculated for Islamic education teachers' estimates of their degree of practice of their roles in light of cognitive load theory, and Table 3 shows that.

Table 3: Arithmetic means and standard deviations of Islamic education teachers' estimates of their degree of practice of their roles in light of cognitive load theory, ranked in descending order

No	Domain	Mean	SD	Rank	Practice Degree
1	Intrinsic Load	3.65	0.89	1	Moderate
2	Extraneous Load	3.63	0.91	2	Moderate
3	Germane Load	3.56	0.81	3	Moderate
Total Degree		3.61	0.83		Moderate

Table 5 shows that teachers' ratings of the extent to which they practiced their roles in accordance with Cognitive Load Theory were moderate across all domains, with an overall mean score of 3.61 and a standard deviation of 0.83. Among the three domains, intrinsic load ranked first, with a mean of 3.65 and a standard deviation of 0.89. This was followed by extraneous load, which ranked second, with a mean of 3.63 and a standard deviation of 0.91. Germane load ranked third and last, with a mean of 3.56 and a standard deviation of 0.81.

The moderateness of the degree of teachers' practice of their roles in light of cognitive load theory, and it not being low, can be attributed to teachers' good awareness of the importance of cognitive load management, in addition to the fact that Islamic education teachers automatically practice some cognitive load reduction strategies, such as simplifying the concept, segmenting the topic, and using audio-visual and technological aids. The result may also be attributed to teachers' professional intuitive awareness that presenting information in a congested manner may distract students; therefore, they seek to control their teaching to ensure learners' comprehension of Islamic education topics. Therefore, the results indicated that their roles in the domain of intrinsic load related to the nature of the material came in the highest ranks of practice, as the teacher focuses on the core of the educational process by presenting the material in a way that suits students' abilities, and this result is also related to teachers' serious attempt to adapt to the developed curricula in recent years, which have become more focused on thinking skills instead of memorization, which contributed to their practice of roles that reduce distracting and unnecessary cognitive load.

However, the moderateness of this practice and the failure of its level to rise indicates the presence of educational or cognitive obstacles that contributed to that, including the absence of deep specialized training; cognitive load theory is a precise theory that requires an understanding of the three types of load (intrinsic, extraneous, germane), and teachers may lack such precise training, as the teacher practices according to what he knows only without being precisely familiar with his roles in light of load theory, especially the extraneous type related to content design. The result can also be explained by the abundance of tasks assigned to the teacher, especially those not related to teaching the subject, such as duty shifts, supervision periods, and school-related activities, and assigning teachers administrative tasks that limit their ability to practice their roles. The researcher believes that teachers may succeed in simplifying the lesson to reduce cognitive load, but they may face difficulty in moving to the more important step, which is motivating students to build knowledge deeply, which is a matter that requires possessing and practicing skills that go beyond classroom management limits, and requires intensive training to ensure they carry out their roles efficiently.

First Domain: Managing Intrinsic Load

Table 4: Arithmetic means and standard deviations of Islamic education teachers' estimates of their degree of practice of their roles in light of cognitive load theory in the domain of (intrinsic load), ranked in descending order

No	Item	Mean	SD	Rank	Practice Degree
9	I balance between the theoretical and practical aspects in presenting lessons	3.85	1.06	1	High
8	I select from the Sharia evidence what serves the lesson's objective without burdening the student's mind	3.76	1.19	2	High
2	I present religious concepts from simple to compound in a way appropriate to the age stage	3.67	1.12	3	Moderate
3	I use prophetic similes to bring unseen (metaphysical) concepts closer to students' minds	3.67	1.06	3	Moderate
7	I check prior experiences before starting to explain a new jurisprudential rule	3.66	1.20	4	Moderate
1	I divide long jurisprudential lessons into main elements to facilitate comprehension of Sharia rulings	3.64	1.03	5	Moderate
5	I link fundamentals (usul) and branches (furu') to reduce students' distraction	3.60	1.21	6	Moderate
10	I work on highlighting the wisdom behind Sharia rulings to facilitate their understanding and memorization	3.56	1.30	7	Moderate
4	I use lesson outlines to control the logical sequence in presenting the Holy Verses	3.55	1.13	8	Moderate
6	I use easy language to explain difficult foundational (usuli) and purposive (maqasidi) terms	3.53	1.16	9	Moderate
Overall Mean		3.65	0.89		Moderate

The arithmetic mean of the items of the (intrinsic load) domain ranged between (3.53-3.85), and came with degrees ranging between high and moderate, and item No. (9), whose text is (I balance between the theoretical and practical aspects in presenting lessons), came in first place with an arithmetic mean of (3.85) and a standard deviation of (1.06), which can be attributed to the fact that Islamic education lessons rely on both the theoretical and practical aspects, and achieving sound understanding requires balancing between the two aspects, such as teaching jurisprudence and personal status topics, for example.

Item No. (6), whose text is (I use easy language to explain difficult foundational (usuli) and purposive (maqasidi) terms), came in the last place, with an arithmetic mean of (3.53) and a standard deviation of (1.16), and the delay of this item behind the rest of the items may be attributed to the fact that some creedal terms may be abstract and need to be simplified by linking them to the reality experienced by students and linking them to tangible real-life examples, but some teachers may lack the experience to do so.

Second Domain: Extraneous Load

Table 5: Arithmetic means and standard deviations of Islamic education teachers' estimates of their degree of practice of their roles in light of cognitive load theory in the domain of (extraneous load), ranked in descending order

No	Item	Mean	SD	Rank	Practice Degree
18	I design worksheets characterized by clarity and that do not require mental effort to achieve the goal	3.75	1.04	1	High
11	I organize the board/presentation in a way that prevents congestion of information	3.73	1.11	2	High
16	I avoid sudden transitions between different Sharia topics by organizing class time	3.70	1.03	3	High

19	I choose instructional aids that contribute to an accurate understanding of topics	3.68	1.08	4	High
17	I avoid unnecessary verbal repetition that weakens students' concentration	3.64	1.16	5	Moderate
13	I control the pace of explanation so that the amount of information presented suits the student's ability	3.63	1.06	6	Moderate
12	I use visual media related to Islamic education topics, especially the Prophetic biography (Seerah)	3.59	1.29	7	Moderate
14	I avoid distracting the student's mind with examples unrelated to the lesson topic	3.57	1.14	8	Moderate
20	I manage side conversations among students to ensure their discussion stays within the lesson topic	3.54	1.24	9	Moderate
15	I take care to create an appropriate classroom environment that enables the learner to reflect and think	3.52	1.11	10	Moderate
Overall Mean		3.63	0.91		Moderate

The arithmetic mean of the items of the (extraneous load) domain ranged between (3.52-3.75), and came with degrees ranging between high and moderate, and item No. (18), whose text is (I design worksheets characterized by clarity and that do not require mental effort to achieve the goal), came in first place with an arithmetic mean of (3.75) and a standard deviation of (1.04), which may be attributed to the role of properly prepared worksheets in achieving deep understanding and consolidating information among students, as it is also a formative assessment tool that enables the teacher to measure students' level of comprehension of topics, and identify learning gaps to address them.

Item No. (15), whose text is (I take care to create an appropriate classroom environment that enables the learner to reflect and think), came in the last place, with an arithmetic mean of (3.52) and a standard deviation of (1.11), and its delay may be attributed to the fact that the conditions of some classrooms may limit the teacher's ability to provide an appropriate classroom environment, such as the large number of students or their crowding in classrooms, or the unavailability of appropriate technological aids for use in topics that require mental effort and concentration from the learner.

Third Domain: Germane Load

Table 6: Arithmetic means and standard deviations of Islamic education teachers' estimates of their degree of practice of their roles in light of cognitive load theory in the domain of germane load, ranked in descending order

No	Item	Mean	SD	Rank	Practice Degree
29	I link jurisprudence topics to students' reality to facilitate building cognitive schemas	3.75	1.03	1	High
22	I make students extract lessons learned from Islamic education topics in their own style	3.72	1.06	2	High
21	I motivate students to link the moral values derived from Islamic education with their practiced behavior	3.70	1.08	3	High
30	I encourage students to independently derive Sharia rulings after presenting the appropriate data	3.66	1.05	4	Moderate
24	I employ critical thinking to compare jurisprudential rulings and their applications in the current era	3.63	1.07	5	Moderate
26	I link creed topics with reflecting on God's creation in the universe to enhance students' level of faith	3.61	1.07	6	Moderate
27	I pose questions that provoke thinking about the objectives (maqasid) of Islamic law	3.56	1.12	7	Moderate
28	I direct students to rephrase the Sharia evidence in a sound linguistic style	3.54	1.23	8	Moderate

25	I encourage students to mentally summarize what has been memorized of Quranic verses and prophetic hadiths	3.26	0.66	9	Moderate
23	I use concept maps to link Islamic education topics, especially jurisprudential ones, with each other	3.18	0.77	10	Moderate
Overall Mean		3.56	0.81		Moderate

The arithmetic mean of the items of the (germane load) domain ranged between (3.18-3.75), and came with degrees ranging between high and moderate, and item No. (29), whose text is (I link jurisprudence topics to students' reality to facilitate building cognitive schemas), came in first place with an arithmetic mean of (3.75) and a standard deviation of (1.03), which can be attributed to the fact that linking jurisprudence to the reality of the student's life transforms theoretical information into familiar contexts, arouses the learner's motivation, and encourages him to invest his mental abilities in deep processing operations to build strong and relevant connections between his new and previous experiences; and enhances the germane load that achieves learning and consolidates information in long-term memory.

Item No. (23), whose text is (I use concept maps to link Islamic education topics, especially jurisprudential ones, with each other), came in the last place, with an arithmetic mean of (3.18) and a standard deviation of (0.77), and its delay may be attributed to teachers' lack of experience in building concept maps and making connections between them in an organized manner that achieves deep understanding among students, as building such maps, especially the complex ones, requires training teachers to prepare them in a way that suits the learner and achieves integrated and coherent conceptual construction in the learner's long-term memory.

Findings Related to the Second Research Question

Are there statistically significant differences at the significance level of ($\alpha \leq 0.05$) in Islamic Education teachers' estimates of the extent to which they practice their instructional roles in light of Cognitive Load Theory attributable to gender, years of teaching experience, and educational qualification?

To answer this question, means and standard deviations were calculated for teachers' ratings of the extent to which they practiced their instructional roles in light of Cognitive Load Theory according to the variables of gender, educational qualification, and years of teaching experience. The results are presented in Table (4):

Table 7: Arithmetic means and standard deviations of Islamic education teachers' estimates of their degree of practice of their roles in light of cognitive load theory according to the variables (gender, years of experience, and academic qualification)

Variable	Type	Means and Standard Deviations	Instrument Domains			Total
			Intrinsic Load	Extraneous Load	Germane Load	
Gender	Male	Mean	3.68	3.62	3.59	3.63
		SD	0.93	0.98	0.83	0.88
	Female	Mean	3.63	3.64	3.53	3.60
		SD	0.85	0.86	0.79	0.80
Academic Qualification	Bachelor's	Mean	3.68	3.65	3.59	3.64
		SD	0.89	0.93	0.82	0.84
	Postgraduate Studies	Mean	3.58	3.60	3.50	3.56
		SD	0.87	0.87	0.79	0.81
Years of Experience	5 years or less	Mean	3.90	3.81	3.72	3.81
		SD	0.76	0.77	0.74	0.72
	6-10 years	Mean	3.58	3.56	3.46	3.54
		SD	0.94	0.95	0.83	0.87
	More than 10 years	Mean	3.60	3.64	3.62	3.62
		SD	0.85	0.94	0.80	0.82

The results in Table 4 show that there are some differences in the average scores and how much they vary for Islamic education teachers when they estimate how well they do their jobs, considering how much they have to think about. This is based on things like whether they're a man or a woman, what kind of degree they have, and how long they have been teaching. To see if these differences are really important, we used a kind of statistical test, which is shown in Table 5.

Table 8: Three-way multivariate analysis of variance for the effect of the variables (gender, academic qualification, and years of experience) on Islamic education teachers' estimates of their degree of practice of their roles in light of cognitive load theory

Source of Variance	Dependent Variable	Sum of Squares	df	Mean Square	F Value	Sig.
Gender – Hotelling's Value 0.015	Intrinsic Load	0.127	1	0.127	0.163	0.687
	Extraneous Load	0.016	1	0.016	0.019	0.890
	Germane Load	0.281	1	0.281	0.432	0.512
	Total	0.064	1	0.064	0.093	0.761
Academic Qualification – Hotelling's Value 0.003	Intrinsic Load	0.257	1	0.257	0.329	0.567
	Extraneous Load	0.065	1	0.065	0.077	0.782
	Germane Load	0.160	1	0.160	0.246	0.621
	Total	0.150	1	0.150	0.217	0.642
Years of Experience – Wilks' Lambda Value 0.955	Intrinsic Load	3.608	2	1.804	2.307	0.102
	Extraneous Load	1.940	2	0.970	1.153	0.318
	Germane Load	2.684	2	1.342	2.062	0.130
	Total	2.511	2	1.256	1.818	0.165
Error	Intrinsic Load	179.875	230	0.782		
	Extraneous Load	193.520	230	0.841		
	Germane Load	149.710	230	0.651		
	Total	158.848	230	0.691		
Total	Intrinsic Load	3313.090	235			
	Extraneous Load	3299.850	235			
	Germane Load	3129.780	235			
	Total	3231.369	235			
Corrected Total	Intrinsic Load	184.127	234			
	Extraneous Load	195.651	234			
	Germane Load	152.908	234			
	Total	161.722	234			

The results presented in Table (5) indicate the absence of statistically significant differences at the significance level ($\alpha \leq 0.05$) in Islamic education teachers' estimates of their degree of practice of their roles in light of cognitive load theory attributable to the variables (gender, academic qualification, and years of experience), and this result can be attributed to the fact that teachers practice similar roles, as the curricula are unified, the work environment is similar, most of them bear administrative and teaching burdens, and they follow specific standards set by the Ministry of Education, in addition to the low level of training received by teachers, regardless of their gender, academic qualification, or years of experience.

15. Recommendations

1. Holding specialized training courses by the Ministry of Education to enable Islamic education teachers to raise their degree of practice of their roles in light of cognitive load theory.
2. Highlighting the role of educational supervisors in enhancing the level of teachers' practice of their roles in light of cognitive load theory through giving applied lessons, and conducting exchange visits that contribute to practically transferring experiences.
3. Holding educational workshops via educational platforms such as Zoom for all Islamic education teachers, aiming to enable them to practice their roles in light of cognitive load theory in a better way.
4. The necessity of training teachers on how to build concept maps and use easy language to explain abstract concepts.
5. Calling on school administrations to the necessity of creating an appropriate classroom environment for learning and providing them with an appropriate atmosphere for thinking and reflection.

16. Suggestions

1. Conducting other studies that investigate the effect of a developed unit in light of cognitive load theory in one of the Islamic education books for the basic stage grades, and measuring its effect on students' achievement and thinking in the Islamic education subject.
2. Conducting other studies that investigate the degree of teachers' practice of their roles in light of cognitive load theory in other specializations and locations.

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