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The Extent of Knowledge of Achieving the Final Exam Questions for the Sixth to Eleventh Grades to the Levels Depth of Knowledge "DOK" Webb in Jordan

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Abstract

This study aimed to know the extent to which the final exam questions are achieved in the basic curricula of students from sixth to eleventh in schools of the Ministry of Education in Jordan for the levels depth of knowledge (DOK) webb, and the study population is from all of all the final exams questions for the basic curricula (Islamic Education, Arabic Language, English, Mathematics, Science) that the Evaluation and Examinations Department at the Ministry of Education for the first semester of the 2015/2016 academic year, which number 30 exams.

The researcher used the analytical descriptive approach through the use of the computerized statistical package program in the social sciences (SPSS), one-way analysis of variance (One-Way ANOVA), the LSD test for post comparisons, and the T-test, and the most prominent findings Study results. Depth of knowledge (DOK) skills were for the level of remembering, while the depth of knowledge skills were less for extended thinking, and the objective exams achieved the depth of knowledge in all its dimensions compared to the essay questions. there are apparent differences in the dimensions of depth of knowledge (remembering, concepts and skills, strategic thinking, extended thinking) according to the subject type variable, and the differences were indicative only in the areas of strategic thinking and extended thinking.

And the differences in the field of concepts and skills were between grades (sixth, seventh, and eighth) on the one hand, and the eleventh grade on the other hand, where the differences were in favor of the eleventh grade, and the differences in extended thinking were between grades (sixth, eighth, and ninth) on the one hand, and the eleventh grade. On the other hand, the differences were in favor of the eleventh grade.

Keywords: exam questions, depth of knowledge (DOK), Jordanian society, Ministry of Education

1. Introduction

The evaluation process for any educational program is based on making decisions that directly or indirectly affect the learner himself. Such as the decision to continue a particular educational program or to reconsider and replace it entirely based on the effectiveness of the program in facilitating the learning process, or its effectiveness in making progress for the learner towards achieving previously prepared goals in the desired direction, and in the areas of physical, mental and emotional growth. You often find that the information needed for the evaluation process came from the learner himself, especially from the classroom. And that the accuracy of the decision was dependent on the accuracy of the available information through obtaining honest information, and the students' evaluation is considered the cornerstone in the integrated construction of the evaluation process.

And that the test, regardless of its type, does not cover the curriculum that students learn, and in order for the results of such a test to be expressive and honest, its paragraphs are supposed to represent the academic content in the best possible way, and in order for this representation to be achieved, the process of building the test must be based on the so-called specification table that links between the objectives to be achieved and the study material that was taught to the students, and thus the teacher has a board in front of him integrated that shows the material he taught and the goals he sought to achieve through the teaching process, and thus the relative importance of each cell of the table and the degree of its representation in the sample of questions. Testing it (Al-Kilani, Adass, Al-Taqi, 2003).

The teacher must realize the objectives of the subject in which he specializes in all its different levels, and acquire the necessary know-how to plan for teaching in the required manner, and the teacher who wants to succeed in the teaching profession must develop his skills and capabilities in planning, implementation and evaluation in the teaching process (Carnen & Carpenter 2003).

2. The Study Problem

The problem of the study lies in identifying the extent to which the questions of the final exams in Jordan achieve the levels depth of knowledge "DOK" and knowing the levels that are prevailing and most used in these exams.

2.1 The Important of Study

The importance of the study lies theoretically in knowing the extent to which the final achievement exams in the Jordanian society achieve levels depth of knowledge "DOK" (remembering and retrieval, concepts and skills, strategic thinking, extended thinking) and the evaluation that provides a correct idea of the nature of exams and the extent to which they achieve these levels, in theory, it works to provide adequate information that is considered feedback to the mentors (assessment and examinations specialists) in the evaluation and examinations department in the ministry of education about the nature of the questions they put, which helps them to reconsider the way and manner of setting the questions, and it is expected that this study will be of interest benefit to decision-makers in the ministry of education in Jordan by providing accurate, logical, objective and realistic information about the status of examinations set by counselors and evaluation specialists in order to develop the measurement and evaluation process, and this leads to improving and developing the outcomes of the educational learning process.

2.1.1 Study Objectives

This study aimed to find out the extent to which final exam questions in basic subjects for students of grades six to eleven in the Ministry of Education in the Jordanian society achieve the levels depth of knowledge "DOK" of the Web by answering the following questions:

The first question: What is the level depth of knowledge "DOK" most used in the final exams of basic subjects (Islamic Education, Arabic, English, Mathematics, Science) for students of grades six to eleven?

The second question: Are there statistically significant differences at the level of significance ($\alpha = 0.05$) between the levels depth of knowledge used in the final exam questions for basic subjects (Islamic Education, Arabic, English, Mathematics, Science) for students of grades six to eleven due to Question type variable: Essay and objective?

The third question: Are there statistically significant differences at the level of significance ($\alpha = 0.05$) between the levels depth of knowledge used in the final exam questions for basic subjects (Islamic education, Arabic language, English language, mathematics, science) for students of grades six to eleven due to For the subject type variable?

The fourth question: Are there statistically significant differences at the level of significance ($\alpha = 0.05$) between the levels depth of knowledge used in the final exam questions for basic subjects (Islamic education, Arabic language, English language, mathematics, science) for students of grades six to eleven due to For a class type variable?

2.1.2 Theoretical Framework

There are many educators and researchers who look at academic achievement in a traditional, limited way. Some of them see that students' achievement is related to some aspects of knowledge that they acquire from learning the prescribed academic content, and that it is easy for the teacher to measure and evaluate the extent of their achievement. Through this limited concept, academic and general achievement tests became limited to measuring students' ability to retrieve facts and scattered information related to the academic content using simple test questions and vocabulary. most of the time, these tests are built without referring to a developed theory or model in educational measurement, and the interpretation of their scores without a clear definition of the frame of reference that gives meaning and significance to these scores, as these questions and vocabulary do not constitute an achievement test in its entirety in its scientific sense, as it does not represent the behavioral domain. comprehensive knowledge and skills involved in the academic content, and the fact that its answer does not need a lot of thinking, realizing relationships, evaluating evidence, proposing alternatives and directions, making decisions, or solving problems that the learner may face in dealing with the data of his life. It is also possible to benefit from the results of these achievement tests and refer to them in making correct and practical

decisions related to the learner as a thinking and creative person, and to the teacher as an educational designer and engineer, and to educational strategies as a methodology and scientific method, and to the educational program as an interactive and renewable system (Allam, Salah 2011).

This narrow and limited view of the concept of academic achievement and educational philosophy that is concerned with the individual differences between individuals and the balance between them and the consequent methods of measuring and evaluating achievement focuses on what the learner stored in his mind of specific information that did not fit the future requirements of education and its changing needs in all aspects in this era Which is characterized by the knowledge explosion, technological progress, and the information and communication revolution. Education will lead change and be at the forefront of it, and it will play an important and fundamental role in the development of the future societies that it seeks. In addition, the vital educational issues and problems related to the three related and interacting challenges facing humanity, namely: development, preservation and protection of the environment, and peace, will become the main focus of international and national policies. This is in addition to the fact that the variables related to population growth, scientific and technological developments, and the patterns of new jobs and businesses are expected to become one of the variables of education in the future (USIA, 1991).

Tests are considered the most important measurement tools that can be used in evaluating students' academic achievement in order to judge their level of achievement in various courses. Study tests are usually linked to specific teaching materials that have already been taught. and when preparing the achievement test to represent everything that attracted the attention of students and teachers during this process, or during the training process on the practical aspects of it, and one of the appropriate methods for that is to prepare a list of the topics that have been taught, i.e. (content analysis), and then we determine the relative weights of all parts Basic and subsidiary subjects of the study (Darwazeh, 2000), the relative weights of the topics must reflect the interest of the teacher, and one of the most important features of these tests is the process of selecting these tests on the basis of the relative importance of each of the content topics and the type of goals to be achieved, and there are a set of characteristics for these goals that are realistic and applicable in light of the conditions of the prevailing school environment, it is desired by the students and meets their needs, aspirations and the needs of their community, and that these educational goals are consistent with the general educational goals and are an extension and complement to them (Reinckens, 2002).

Without paying attention to these questions in the educational process, the learning process is not achieved as it should be, or its impact is weak, and the questions vary according to the diversity of goals and their classification criteria. there are many points of view for categorizing questions (Al-Khatib and Al-Khatib, 1997; Zaytoun, 1997; Katami, 1998; Marso & Moore, 1995; Commbe & Hubley, 2003; Pigge, 2002), including:

Questions from the point of view of the world Weaver and Sensei: It includes two types of questions; Remembering questions: which do not need a lot of thinking and guessing and may require one short answer, the other type of questions are questions of thinking: which need higher levels of thinking and logic in analysis, composition, evaluation, organization, comparison and prediction in order to answer them. There are questions from the point of view of the scientist Stahl and Anzalon, and he classified them into questions of remembrance, which are simple questions and their percentage is 40%. classification questions are called differentiation questions, and they are the simplest types of questions, and they are the simplest types of questions, and their percentage is 20% in the exam. there are reasoning questions, which are medium-difficult questions, at a rate of 25%, and finally questions of justification, which are difficult questions that require a high level of thinking, at a rate of 15%. There is a classification of the scientist John Wilson, who classified the questions into four categories equally. Analytical questions: They require analytical statements that clarify what is required. experimental questions: They require answers that can be inferred from real life experiences. Evaluative questions, which require the evaluation of conceptual meanings such as praise, blame and criticism. Metaphysical questions: It deals with spiritual and metaphysical issues, such as issues of religion and non-sensible phenomena. the researcher Gilford identified the questions with five types of recognition and discrimination questions, which are the simplest types of questions that can be asked about a specific cognitive phenomenon, with a rate of 10%. And the reminder questions, which are among the simple questions, and their percentage is 30%, and they are considered the cognitive basis on which the intellectual system is based, and without them, no mental process takes place. collective questions: These are questions that collect and combine information and extract ideas through new information and data available, and they may be 30%. differential questions: lead to the analysis, classification and ramifications of the different elements in the phenomenon and their percentage is 51%. evaluative questions: They are the highest levels of the intellectual and mental scale, and contain the issuance of evaluative judgments regarding phenomena and things to reveal the validity and

importance of information, which is 15%. however, Bloom's classification of questions is based on a hierarchy that he developed to classify educational goals in the cognitive field, and he sees the distribution of questions in any test in a manner that is consistent with his classification of cognitive goals in six levels are knowledge and remembrance: it amounts to 45%, comprehension and comprehension questions: it amounts to 10% of the total questions, and application questions: it amounts to 20% of all questions. Analysis questions: they represent 10% of all questions, and composition questions: they represent 10% of the total questions. evaluation questions: It represents 5% of all questions. There is another classification of the world, Norman Webb, depth of knowledge "DOK" in 1997, where he developed a process and criteria for a systematic analysis of the alignment between expressive criteria and evaluations. The process and criteria showed an application to review the alignment of curricula. this aspect of the work presents the depth of knowledge "DOK" model used to analyze the cognitive expectations required from standards, curricular activities, and assessment tasks (Webb, 1997). This model is based on the assumption that all elements of the curriculum can be categorized based on the cognitive demands necessary to produce an acceptable response. each set of tasks reflects a different level of cognitive expectation, or the depth of knowledge required, to complete the task. It should be noted that the term knowledge, as it is used herein, is intended to include pretty much all forms of knowledge (ie procedural, declarative, etc.). Table 1 shows a modified and developed version of the model.

Table 1. The percentage of questions for each level depth of knowledge

Level title	Level of cognitive depth	Percentage of the total questions
1	Remembering and recalling	65%
2	Skills and Concepts	20%
3	Short-term strategic thinking	10%
4	Extended (extended) thinking	5%

Level of memory and retrieval Curriculum elements that fall into this category include basic tasks that require students to remember or reproduce knowledge or skills. Topic content at this level often involves working with facts, terms or properties of objects. It may also include the use of simple procedures or formulas. and little conversion or extended processing of target knowledge required from tasks that fall into this category. Keywords that often denote this particular level include: enumerate, define, and define. The student who answers the Level 1 term either knows the answer or not. That is, the answer does not need to be 'find' or 'solved'.

Level of skills and concepts This level includes the involvement of some mental processes away from remembering or reproducing the answer.

It requires students to compare or contrast people, places, events and concepts; converting information from one form to another; categorize or sort items into meaningful categories; describe or explain issues, problems, patterns, cause and effect, significance or effect, relationships, perspectives or processes. The level "describe or explain" also requires students to go beyond describing or interpreting the information evoked to describing or explaining a result, "how" or "why". The learner must make use of the information in a context different from what he learned. include items in the curriculum that are considered within this class works with or applies skills or concepts to tasks relevant to the field of study in a laboratory environment. Subject matter content at this special level usually involves working with a set of principles, categories, heuristics, and protocols.

At this level students are required to transform/process the target knowledge before answering. For example, the mental processes often indicative of this particular level include summarizing, estimating, organizing, categorizing, and reasoning. Short-term Strategic Thinking Level Vocabularies that fall into this category require short-term use of higher-order thinking processes such as analysis and evaluation, to solve real problems with predictable results. Giving reasoning is a key marker for tasks that fall into this special category. The expectation given to tasks at this level tends to require the coordination of knowledge and skill from multiple subject areas to implement processes and a solution in a project-based environment. The main processes include analysis, interpretation, support with evidence, generalization, and innovation. expansive Extended Thinking Level Curriculum elements designated at this level require extended use of higher-order thinking processes such as synthesis, reflection, evaluation and modification of plans over time. Students participate in investigations to solve real problems with unexpected results. employing and sustaining strategic thinking processes over a longer period of time to solve a problem is a key feature of the curriculum objectives that are mapped to this level. The main strategic thinking processes that indicate this level include composition, thinking, behavior, and management.

2.1.3 Previous Studies

There are many studies that talked about this subject, including the study of (Abu Al-Rub, 2003) entitled "The Impact of Providing Seventh Grade Students with Behavioral Objectives on Their Achievement in Mathematics in Public Schools in Jenin Governorate." The sample of the study consisted of (64) male and female students from the seventh grade, and the study resulted in the presence of differences in the process of comprehension, application, analysis, synthesis and evaluation between the students to whom the behavioral goals system was applied and the students to whom this system was not applied in favor of those to whom it was applied. A study (Moulton ,2003) aimed at identifying the extent to which questions from a sample of tests are distributed on cognitive goals, where (78) tests were analyzed in different courses, and the study showed that the questions focused on the minimum goals, and there were no significant differences in the percentage of distribution of these questions. Attributable to the variables: gender, specialization, and experience. A study (Nielson & Ginn, 2003) aimed at verifying the extent to which teachers applied the educational objectives in preparing questions, and included the study sample by analyzing the questions of (114) male and female teachers, and the study concluded that (77%) of the questions set by the teachers had Centered around the objectives of the levels of remembering, understanding and application. A study (Marso & Pigge, 2002) aimed at summarizing the results of a survey of (225) studies on various subjects set by teachers in the higher education stages. A study conducted by (Talbot, 2001) aimed at identifying the level of cognitive goals prevailing in the tests set by teachers in intermediate colleges, where (65) educational and administrative tests were analyzed in one of the colleges, and the study concluded that the level of the most common goals in these tests It is the level of knowledge and remembering, followed by the level of application. A study (Susini, etall, 2001) which aims to verify the extent to which the questions that teachers set in their various tests are distributed in a manner that is compatible with Bloom's classification. for this purpose, (65) tests were analyzed, and the study concluded that the questions focused on the lower levels of the objectives. A study (Jabr and Al-Hamshari, 2000) aimed at analyzing the questions in the final exams for some mathematics courses at Al-Quds Open University. It includes all levels of cognitive objectives, but the majority of questions were limited to questions from the application level. A study (Thaker, 1998) aimed at verifying the extent to which achievement exam questions achieve the goals that are presented through the computer to achieve the behavioral and educational goals. The study sample consisted of (288) male and female students, and it found that there were differences due to the variables of age, gender and qualification.

3. Method and Procedures

3.1 The Study Population and its Sample

The study population consisted of all final exam questions for basic subjects (Islamic education, Arabic language, English language, mathematics, science) set by the Department of Evaluation and Examinations at the Ministry of Education in the Jordanian Academy for the first semester of the academic year 2015/2016. The sample of the study was (30) exam, where the previous subjects are considered basic and a central exam is prepared by the Ministry, starting from the sixth grade.

3.2 Study Tools

To verify the aim of the study, the researcher designed a questionnaire to be used as a criterion for analyzing exam questions, as he based its preparation on the original Weeb form and on a number of experts in the Ministry of Education, due to the lack of studies directly related to this subject, but the areas of educational objectives and their different levels were guided by (Zaytoun , 1997), the questionnaire included the four levels depth of knowledge "DOK" developed by Webb 1997, against each of them a group of key verbs that describe it, and Table 2 shows the components of the questionnaire.

Table 2. The components of the questionnaire levels of cognitive depth

Levels of cognitive depth	Content
Remembering and retrieving	mention, recognize, name, narrate, arrange, communicate, quote, use, repeat, tabulate, define
Concepts and skills	Interpret, compare, connect mentally, distinguish, demonstrate, summarize
Strategic thinking	Reviews, evaluates, argues, solves unusual problems, criticizes, compares, explains phenomena, investigates, makes judgments, hypothesizes, differentiates.
Extended Thinking (extended)	designs, connects, analyzes, applies, innovates, creates, proves.

3.3 Validity of the Tool

To verify the validity of the tool, the researcher presented the questionnaire to a group of arbitrators specialists in the Ministry of Education in the Jordanian society with higher qualifications in the educational and psychological fields, and their number reached (9), another form was used for the purpose of arbitration, and they were asked to estimate, in the form of percentages, the suitability of each element of the contents for each level of knowledge depth. (92%-92%), (91%-96%), and (87%-93%) on the levels of remembering and recall, skills and concepts, strategic thinking, and extended thinking, respectively.

3.4 Tool Stability

The stability of this tool was not calculated as its contents simulate Bloom's classification, and the contents of Bloom's classification were monitored from specialized references (Zaitoun, 1997); (Katami, 1998); (Atkinson & Longman, 2003), where these references unanimously agreed on the stability of the classification, and the researcher considered that acceptable for the purposes of this study.

3.5 Study Methodology

In this study, the researcher used the descriptive approach through the method of content analysis in order to identify the levels depth of knowledge used in the final exams set by the Department of Evaluation and Examinations at the Ministry of Education in Jordan. and that is in the light of the variables: the form of the questions (essay/objective), the grade (sixth to the eleventh) and the study subject (Islamic education, Arabic language, English language, mathematics, science).

3.6 Statistical Processors

To check the study questions statistically, the researcher used the computerized statistical package in social sciences (SPSS) program, and the following statistical, descriptive and analytical treatments: arithmetic means, standard deviations, percentages, one-way analysis of variance, (One-Way ANOVA), and (LSD) test for dimensional comparisons. and the (T-test).

4. Results

The study aimed to identify the most used depth of knowledge in the final exams of basic subjects (Islamic Education, Arabic, English, mathematics, science) for students of grades (6-11), in addition to identifying the difference in cognitive depth depending on the variables of the type of questions and the educational material. , grade level, and the following is a presentation of the results reached.

The first question: What is the depth of knowledge most used in the final exams of basic subjects (Islamic education, Arabic language, English language, mathematics, science) for students of grades six to eleven?

To answer this question, the arithmetic averages of the percentages were extracted for each of the four levels of cognitive depth, and iterations for the number of exams that included each level of cognitive depth.

Table 3. Arithmetic averages of repetition levels depth of knowledge for grades (6-11)

Class	Mental skills	Islamic Education	Arabic Language	English language	Math	Science
Sixth	Remember	10.5	9.5	7.0	8.0	9.5
	Concepts and skills	4.5	5.0	5.5	5.5	7.0
	Strategic Thinking	3.0	1.0	1.5	3.0	4.5
	Extended thinking	0.0	0.0	0.5	1.0	0.5
Seventh	Remember	9.5	11.5	7.0	7.0	7.5
	Concepts and skills	6.5	5.5	6.5	6.0	5.5
	Strategic Thinking	5.0	1.5	2.0	4.5	3.5
	Extended thinking	1.0	0.5	1.0	2.5	2.5
Eighth	Remember	9.0	12.0	10.0	12.0	8.5
	Concepts and skills	7.0	4.5	8.0	7.0	6.5
	Strategic Thinking	4.5	1.0	1.5	3.5	5.5
	Extended thinking	0.5	0.0	1.0	2.0	2.0
Ninth	Remember	11.5	13.0	16.5	9.5	14.5
	Concepts and skills	8.0	8.0	9.5	4.5	7.0
	Strategic Thinking	6.0	1.5	2.0	4.0	4.5
	Extended thinking	0.0	1.0	1.0	1.5	2.0
Tenth	Remember	12.0	11.5	9.5	11.5	11.5
	Concepts and skills	5.5	6.5	7.0	7.5	8.0
	Strategic Thinking	5.0	2.0	2.5	5.5	3.5
	Extended thinking	2.5	1.5	1.5	3.0	3.0
Eleventh	Remember	11.0	12.0	12.0	10.5	9.5
	Concepts and skills	8.0	8.5	10.5	8.5	8.5
	Strategic Thinking	7.0	2.0	2.5	4.5	6.0
	Extended thinking	2.0	2.0	1.5	2.0	3.5
Total	Remember	10.6	11.6	10.3	9.8	10.2
	Concepts and skills	6.6	6.3	7.8	6.5	7.1
	Strategic Thinking	5.1	1.5	2.0	4.2	4.6
	Extended thinking	1.0	0.8	1.1	2.0	2.3

Table 3 shows the most prominent depth of knowledge skills for the sixth, seventh, ninth, tenth, and eleventh grades of subjects (Islamic Education, Arabic, English, mathematics, science) were for the level of remembering, while the lowest cognitive depth skills were for extended thinking.

But with regard to arranging the skills of the depth of knowledge of the various subjects according to the skills (remembering, concepts and skills, strategic thinking, extended thinking), it was (Islamic education, Arabic language, English language, mathematics, science).

The second question: Are there statistically significant differences at the level of significance (α= 50.0) between the levels depth of knowledge used in the final exam questions for basic subjects (Islamic Education, Arabic, English, Mathematics, Science) for students of grades six to eleven that are attributed to Question type variable: Essay and objective?

To answer this question, the arithmetic means and standard deviations were calculated for each level depth of knowledge, according to the question type variable, and then they were compared using the t-test for two independent samples. Table 4 shows the results related to that.

Table 4. Results of the (T) test for differences in levels depth of knowledge depending on the question type variable

		Number	Average	Standard deviation	T	Significance
Remember	objective	30	13.03	2.87	7.26	0.00
	Pans	30	7.93	2.56		
Concepts and skills	objective	30	8.33	2.06	6.28	0.00
	Pans	30	5.40	1.52		
Strategic Thinking	objective	30	4.20	2.34	2.93	0.00
	Pans	30	2.73	1.44		
Extended thinking	objective	30	1.87	1.31	3.07	0.00
	Pans	30	1.00	0.83		

Table 4 shows that the statistical values (T) amounted to (7.26, 6.28, 2.93, 3.07) for the fields of cognitive depth (remembering, concepts and skills, strategic thinking, and extended thinking), as all values of (T) indicated that they are statistically significant. By reviewing the arithmetic averages, it was found that the objective exams achieved the depth of knowledge in all its dimensions compared to the essay questions.

The third question: Are there statistically significant differences at the level of significance ($\alpha = 0.05$) between the levels of cognitive depth used in the final exam questions for basic subjects (Islamic education, Arabic language, English language, mathematics, science) for students of grades six to eleven due to For the subject type variable?

To answer this question, the arithmetic means and standard deviations were calculated for each level depth of knowledge according to the variable of the study subject, and then they were compared using the one-way analysis of variance test and the comprehensive test for post comparisons, and Table (5) shows the results associated with that.

Table 5. The arithmetic means and standard deviations of the depth of knowledge dimensions according to the subject variable

Cognitive depth level	Course	Number	Arithmetic mean	Standard deviation
Remember	Islamic Education	12	10.58	5.11
	Arabic Language	12	11.58	3.03
	English language	12	10.33	4.58
	Math	12	9.75	3.14
	Science	12	10.17	2.52
	Total	60	10.48	3.73
Concepts and skills	Islamic Education	12	6.58	2.35
	Arabic Language	12	6.33	2.74
	English language	12	7.83	2.25
	Math	12	6.50	2.35
	Science	12	7.08	1.93
	Total	60	6.87	2.33
Strategic Thinking	Islamic Education	12	5.08	2.71
	Arabic Language	12	1.50	0.80
	English language	12	2.00	0.74
	Math	12	4.17	1.11
	Science	12	4.58	1.31
	Total	60	3.47	2.06
Extended thinking	Islamic Education	12	1.00	1.21
	Arabic Language	12	0.83	1.03
	English language	12	1.08	0.67
	Math	12	2.00	0.95
	Science	12	2.25	1.29
	Total	60	1.43	1.17

Table 5 shows that there are apparent differences in the dimensions of cognitive depth (remembering, concepts and skills, strategic thinking, extended thinking) according to the subject type variable. To verify that these differences are substantial and statistically significant, a one-way analysis of variance was performed, the results of which appear in Table 6.

Table 6. The results of the one-way variance analysis of the difference in the dimensions of cognitive depth according to the subject variable

		Sum of Squares	Degrees of freedom	Mean of squares	F	Significance
Remember	Between groups	22.6	4	5.6	0.4	0.8
	Inside groups	796.4	55	14.5		
	Total	819.0	59			
Concepts and skills	Between groups	17.8	4	4.4	0.8	0.5
	Inside groups	301.2	55	5.5		
	Total	318.9	59			
Strategic Thinking	Between groups	124.4	4	31.1	13.5	0.0
	Inside groups	126.5	55	2.3		
	Total	250.9	59			
Extended thinking	Between groups	19.9	4	5.0	4.5	0.0
	Inside groups	60.8	55	1.1		
	Total	80.7	59			

Table 6 shows that the values of the statistic (P) amounted to (0.40, 0.80, 13.5, 4.5) for the domains of cognitive depth (remembering, concepts and skills, strategic thinking, and extended thinking), as the differences were indicative only in the domains of strategic thinking and thinking. extended. To determine which of the subjects the significant differences are located, a post-comparison test was conducted, the results of which are shown in Table 7.

Table 7. Shafa test results for post comparisons according to the subject variable

		Islamic Education	Arabic Language	English language	Math	science
Strategic Thinking	Islamic Education		3.583*	3.083*	0.92	0.50
	Arabic Language			-0.50	-2.667-*	-3.083-*
	English language				-2.167-*	-2.583-*
	Math					-0.42
	science					
Extended thinking	Islamic Education		0.17	-0.08	-1.000-*	-1.250-*
	Arabic Language			-0.25	-1.167-*	-1.417-*
	English language				-.917-*	-1.167-*
	Math					-0.25
	science					

Table 7 shows in the field of strategic thinking that there are differences between Islamic education on the one hand, and both the Western language and the English language, where the differences were in favor of Islamic education.

Also, the significant differences were between mathematics on the one hand, and both the Western language and the English language on the other hand, in favor of mathematics, and the significant differences were between science on the one hand, and both the Western language and the English language, in favor of science.

As for the field of extended thinking, the differences were significant, and the significant differences were between mathematics on the one hand, and Islamic education, the Western language, and the English language, on the other hand, in favor of mathematics.

Also, the significant differences were between science on the one hand, and Islamic education, the Western language, and the English language, on the other hand, in favor of science.

The fourth question: Are there statistically significant differences at the level of significance (α = 0.05) between the levels of cognitive depth used in the final exam questions for basic subjects (Islamic education, Arabic language, English language, mathematics, science)

For students in grades six to eleven, is it attributed to the variable of the type of academic grade?

To answer this question, the arithmetic means and standard deviations were calculated for each level of knowledge depth, according to the variable of the academic grade, and then compared between them through the use of the one-way analysis of variance test and the comprehensive test for the dimension comparisons, and Table 8 shows the results associated with that.

Table 8. Arithmetic means and standard deviations for the depth of knowledge dimensions according to the grade variable

		Number	Arithmetic mean	Standard deviation
Remember	Sixth	10	8.9	4.4
	Seventh	10	8.5	2.7
	Eighth	10	10.3	3.5
	Ninth	10	13.0	3.8
	Tenth	10	11.2	3.5
	Eleventh	10	11.0	3.2
	Total	60	10.5	3.7
Concepts and skills	Sixth	10	5.5	2.2
	Seventh	10	6.0	0.9
	Eighth	10	6.6	2.5
	Ninth	10	7.4	2.8
	Tenth	10	6.9	1.4
	Eleventh	10	8.8	2.4
	Total	60	6.9	2.3
Strategic Thinking	Sixth	10	2.6	1.5
	Seventh	10	3.3	1.8
	Eighth	10	3.2	2.5
	Ninth	10	3.6	2.5
	Tenth	10	3.7	1.6
	Eleventh	10	4.4	2.3
	Total	60	3.5	2.1
Extended thinking	Sixth	10	0.4	0.5
	Seventh	10	1.5	1.1
	Eighth	10	1.1	1.1
	Ninth	10	1.1	0.9
	Tenth	10	2.3	1.1
	Eleventh	10	2.2	1.2
	Total	60	1.4	1.2

Table 8 shows that there are apparent differences in the dimensions of cognitive depth (remembering, concepts and skills, strategic thinking, extended thinking) according to the grade variable. To verify that these differences are substantial and statistically significant, a one-way analysis of variance was performed, the results of which appear in Table 9.

Table 9. Results of one-way analysis of variance for the difference in cognitive depth according to the variable of the academic grade

		Sum of Squares	Degrees of freedom	Mean of squares	F	Significance
Remember	Between groups	135.9	5	27.2	2.1	0.1
	Inside groups	683.1	54	12.7		
	Total	819.0	59			
Concepts and skills	Between groups	67.1	5	13.4	2.9	0.0
	Inside groups	251.8	54	4.7		
	Total	318.9	59			
Strategic Thinking	Between groups	17.9	5	3.6	0.8	0.5
	Inside groups	233.0	54	4.3		
	Total	250.9	59			
Extended thinking	Between groups	26.3	5	5.3	5.2	0.0
	Inside groups	54.4	54	1.0		
	Total	80.7	59			

Table 9 shows that the values of the statistic (F) were (2.10, 2.90, 0.80, 5.20) for the areas of depth of knowledge (remembering, concepts and skills, strategic thinking, and extended thinking), there are significant differences only in the areas of concepts and skills, and extended thinking. In order to determine which of the subjects the significant differences are located, a post-comparison test was conducted, the results of which are shown in Table 10.

Table 10. Shafa test results for post-comparisons according to the grade variable

		Sixth	Seventh	Eighth	Ninth	Tenth	Eleventh
Concepts and skills	Sixth		-0.50	-1.10	-1.90	-1.40	-3.30*
	Seventh			-0.60	-1.40	-0.90	-2.80*
	Eighth				-0.80	-0.30	-2.20*
	Ninth					0.50	-1.40
	X						-1.90
	Eleventh						
Extended thinking	Sixth		-1.10*	-0.70	-0.70	-1.90*	-1.80*
	Seventh			0.40	0.40	-0.80	-0.70
	Eighth				0.00	-1.20*	-1.10*
	Ninth					-1.20*	-1.10*
	X						0.10
	Eleventh						

Table 10 shows that the differences in the field of concepts and skills were between grades (sixth, seventh and eighth) on the one hand and the eleventh grade on the other hand, where the differences were in favor of the eleventh grade.

Also, the differences in extended thinking were between grades (sixth, eighth, and ninth) on the one hand, and the eleventh grade on the other hand, as the differences were in favor of the eleventh grade.

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