

***The Achievement and Development of Critical Thinking  
Skills in the Arabic Language of Adolescent Pupils With  
reference to The Primary Stage throughout Jordan***

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## **Abstract**

This study aims to investigate and measure the students' critical thinking skills and achievements in the Arabic language at Primary and secondary stages, also measuring the development of the cognitive Dimensions of critical thinking asserted by the researcher. The researcher has identified five elements which comprise of the varying levels of critical thinking abilities in the Arabic Language. These are as follows; analyses , inference, Induction, deduction and evaluation,. The Arabic grammar and literature exam has been formulated for both primary and secondary Pupils, in order to answer the questions posed by the study. The researcher found out that the levels achievement of critical thinking of students in both stages, are average and satisfactory, there is no significant statistical difference in the achievement of critical thinking skills between primary and secondary students, there is also no significant statistical differences in the achievement of critical thinking skills attributed to gender, However there are significant statistical differences in the achievement of critical thinking skills between Government schools & public schools.

Records show that critical thinking thrives mostly in public schools. According to the category of critical thinking skills, students can deal with analysis best, This dimension ranked top of the list of answers Evaluation, inference, deduction and induction came last respectively.

Key words: critical thinking skills, analysis, inferences, deduction, induction, evaluation, primary stage, secondary stage

## **Introduction**

The most important educational goals to be achieved at secondary school level is to apply critical thinking to their academic assignments. In Article 3 of the Jordanian Constitution both the dimensions and foundations of Educational philosophy has been emphasized. In article IV we read that the student should at this point able to;

\* Use the Arabic language in self-expression and communication with others easily and smoothly.

\* The development of critical thinking skills and a means to use scientific methods of observation, research and to solve problems (a teacher's message, issue 2, 1993)

We note that the focus included within the articles of the Constitution relating to education was on the subject of the Arabic language and its importance in maintaining the nation's identity. It also focused on the training of critical thinking skills that develop the capacity of individuals and contribute to solving the problems they face thus leading to the elevation and progress of the nation. Placing them in the ranks of advanced nations. The Education Act passed in 1994 stipulated its main objective which was to develop further the capacity of citizens capable of critical thinking following scientific methods in research and problem solving (Teachers Message, issue2, 1993).

Critical thinking is the cornerstone for the acquisition of different experiences throughout one's life. Hence a fundamental role of teaching is the ability to train students to apply critical thinking together with problem solving methods. In addition to this a scientific approach should become a habitual response of students to problems through the continuous training of critical thinking methods. Accordingly the student should demonstrate autonomy in their ability to critically analyze problems and provide comprehensive solutions. The ability to apply critical thinking methods is not achieved simply by dictation but is a result and combination of one's general intelligence and academic practice. (Abu - Dabat 2007, p. 52)

There are substantial differences discovered between a person's own unique style of scientific thinking mechanisms and the steps employed to teach a person the skills required for critical thinking. Commenting on this the American educator and philosopher John Dewey, who laid the foundations of scientific thinking for the 20th century outlined the steps in which such a mechanism could be employed. These are as follows; feeling that there is a problem, data collection, hypothesis and conclusion.

The mechanism of critical thinking lies at the heart of the educational process of what we call the 'Dewey thinking apostate' or reflexive thinking which are based on two basic processes, hesitation and trial and error, after which the students or learner will achieve better reflective thinking and problem solving skills. (Archambault, 1964.p.29RD)

In the sphere of reflective thinking hesitation and 'trial and error' are considered by Dewey to be the main embodiment of life itself. The results of which are said to be the human beings innate ability to carry out everyday activities. These dimensions of critical thinking are emotional, social, physical and cognitive. In our study we will focus on the cognitive aspect for the study of critical thinking. These Cognitive aspects can divide into five different categories: Inference, Analysis, Evaluation, Conclusion and Induction.

These five dimensions indicate the acquisition of information by students, which drive them to think in a more complex manner and become more self critical and often reflect on the work they have done. (Anderson, J.R. 1988)

Accordingly we are assured that critical thinking must give students an overall better understanding of not only their academic work but also a better general understanding about the world around them and independence in making their own decisions. After examining their results produced when critical thinking methods are applied the student is then more aware of a means to control such results and in turn become more efficient and more accurate. \*(Stephen, 2000.p45)

### **Problem of the study**

Many educators and researchers associates critical thinking skills with modern and up to date teaching methods, and usually return to configure proper scientific thinking to the methods in which they apply in the pilot schools. They conducted their tests in accordance with the principle of the experimental and control groups. The researcher believes that the constructions of critical thinking skills has not only become a skill in students minds and actions as a result of applying and conducted them in a certain and a limited time, but they need to be trained through continuously in every subject according to the desired aims laid down and formulated by the teacher and his colleagues in the school. So these skills are scientifically achieved as a process that is long term in nature. This may take years governed by many factors and variables. For that the researcher has realized that the measurement of critical thinking skills among students must be built and formulated on the performance of the teacher and based on the actual strategies in the schools and not on the proposed and inaccurate postulates and hypotheses. (Geoff. 2009, P.57)

## **The aims of the study**

This study aims to measure the level of cognitive aspects of critical thinking skills, identified by the researcher among the students of primary and secondary stages.

The study also aimed to determine the development of these aspects in secondary school where the students moved from the primary school to secondary level. On the other hand, the researcher would like to know to what extent the long terms goals performed by The Ministry of Education in Jordan has been achieved.

Accordingly, this study aims to demonstrate the results for students who have been taught the five dimensions for cognitive thinking and will answer the following questions;

1. To what extent do learning strategies and teaching methods contribute in the formation of critical thinking skills for students in both primary and secondary stages?
2. Is there any development of critical thinking skills among students of secondary stage and what element of the five Dimentions received more than others?
3. To what extent such strategies contribute in building up students (males and females) ability for critical thinking skills in both primary and secondary stages?
4. Are there any differences in the way of critical thinking among public and private school students?
5. Which of the five cognitive dimensions have received a greater response from students?

## **Postulates of the study:**

From these questions, the researcher extrapolated the following assumptions:

1. The current education strategy and methods of teaching do not usually contribute to the building of critical thinking skills among students.

2. There are no statistically significant differences between the performances of primary and secondary school students according to the five cognitive dimensions,.

3. There are no statistically significant differences between the performances of all students according to their gender.

4. There are no statistically significant differences between the performance of public school students and their counterparts in private schools.

5. There are no significant differences between students' responses in both primary and secondary schools to the test questions performed to measure critical thinking skills dimensions.

## **Study Terminology**

### **Critical thinking**

Dewey and Mathew agreed on the meaning and mechanism of explanation of critical thinking. Both scholars thought that critical thinking skills grow gradually in the mind of a person and pass through several stages until they become part of that person's personality and actions (Mathew. 1988, P.38-43)

Critical thinking skills according to the entomology theory, are the most important characteristic of the human from other organisms. The mechanism of critical thinking skills start from direct experience passing through criticism and analysis up to the deduction and approach the results ( Kadra, 2005)

Paul has identified critical thinking as an organized procedural way of which form human meaningful and accurate thinking (Paul 1991). In his term Hullf identified it as caution and careful examination of the events and beliefs, then working very hard to make an accurate assessment to those elements (Hullf , 2000) .

Al-Jarwan identified critical thinking skills as reasonable thinking that is focused on deciding on doing what you want according to what to believe. He added, such a process needs and requires forming a suitable hypothesis and questions to be answered, also alternative plans to experiment. (Al-Jarwan , 2002)

From the above definitions we can understand critical thinking as an appreciation of reflexive action and estimation to what we believe. According to such complicated thinking and acting, one can accept it or refuse it. (Fisherman.S.1997).

Parker, M. pointed out that C.T. is a decision to accept such ideas or reject ideas of a certain judgment (Richard and Linden.2002).Some educators believe that critical thinking is logical thinking. But in fact it contains a correct vision of thinking, honesty and accuracy in performance to reach the factual judgment.([Http:11enWikipedia Org/p.1](http://enWikipedia.org/p.1)).

The researcher believes that above all mentioned identifications, critical thinking skills are a clear knowledge of the differences between logic on the one hand and measurement (inductive thinking) and extrapolation (deductive thinking) on the other.

Edward Glasser has confirmed the existence of three basic elements of critical thinking skills:

1. The ability to link the elements of the problem and experiences.
2. Identify the logical scientific methods and the results achieved.
3. Obtaining certain skills to make connections between premises and results (Glasser,E.1941)

William Simner who lived in the period in which Dewey, J. lived could conclude on the type of individual thinking through his performance and work, you can say: 'this man is an expert in medicine or in mechanics etc'. (William, S.2001).

In our point of view critical thinking skills are intended objectives formed by the teacher and the goals of education in all fields. (Edgar,S.1976,P.54)

## Inference

Inference is the process of extracting the answer or the result based on information known in advance. This may be either true or false. In the Oxford dictionary we read: infer, to reach a conclusion from the information you have, (Oxford dictionary 1999, P.392)

## Conclusion

A method of reasoning, cognitive mental process and a means to find the cause of accidents, in order to understand or support the beliefs, or extraction through the concepts, actions or feelings.

*(available at [wikipedia.org/wiki](http://wikipedia.org/wiki))*

## Induction

**The process of deriving general principles from particular facts or instances.** ([www.thefreedictionary.com](http://www.thefreedictionary.com).) thus is the process that stimulates the mind of individuals to reach total realization.

## Analysis

To determine the relationship between the intended and actual phrases, questions, concepts and attributes.

## Evaluation

A systematic process of data collection and interpretation of the evidence, related to students or a program, which helps direct the educational work and action, It is intended to measure the credibility and validity of exams.  
([www.slah.jeeran.com/sal14.htm](http://www.slah.jeeran.com/sal14.htm))

## Previous Studies

Many studies conducted on the effectiveness of new strategies in teaching in educational achievement. There are studies related to the relationship between teaching strategies and the development of critical thinking among students.

Majid Aljalad conducted a study about the impact of the use of geographic map concepts on the development of critical thinking skills in Islamic Studies (Aljalad 2006).

M. Soleiman conducted research on the impact of the proposed strategy for reading a certain book in the Arabic Language on critical thinking skills. The researcher found a positive relationship between the two variables (Soleiman, 2002).

A study also carried out by M.Hamadna found out the level is satisfactory and differentiated. in critical thinking in mathematics at the tenth grade in Jordan. (Hamadna, 1995)



There is a relevant study that proved good relations between classroom speeches (addressing) and group **grammatical** concepts in secondary schools and put them into practice (Garaida, 2007).

In the Western world a study was conducted by Roland on the impact of the classroom environment on student mental skills.

The researcher found out there was a significant relation between the variables assigned by the researcher and critical thinking in general. (Roland, 2000)

An important study about students' achievements of critical thinking at university level, was conducted by a group of professors at the University of California.

The researcher team found out and reached the following conclusion:

A large proportion of the sample (89%) recognized the importance of students training in critical thinking skills, but only 19% of the students operate in order to achieve this goal.

The study also showed that teachers do not explain the importance of critical thinking skills to their students as a goal that should be achieved.

The study showed that 78% of the student's response lack necessary skills, whilst 75% considered the assessment was something minor.

The results proved that 8% of the faculty teachers are deliberately teaching their students critical teaching skills. (Gardiner, 1995).

### **Methodology and procedures**

The researcher used a special test to measure critical thinking skills which are: Inference, deduction, induction, analyses and evaluation for both primary and secondary stages.

The test has extrapolated from Arabic grammar and Arabic literature fields with reference to a Californian test of critical thinking skills. The test was approved by the American Philosophical Society (Fashion and Fashions, 2002).

Every test included twenty five questions for primary and secondary students. Five questions for each element to be marked equally. Twenty points for each element. The total marks were out one hundred

The researcher used the descriptive analytical method to achieve the objectives of the research and answer the questions of the study. The researcher also requested from a group of professors of curriculum and Arabic language for approval after modifying the test.

For the stability of the test, the researcher used Koder Richard -20 equation after its application to a sample of twenty pupils in each grade. The results showed a high degree of internal consistency between paragraphs of the test, reaching an appropriate value (0.72) and (0.62), (0.25) and (0.50), this indicated that the coefficient for both was suitable to go a head with the scientific conditions of the research.

### **Limitation of the study**

This study was limited to sixth grade students because it is the final stage of the primary school and tenth grade students because it represents the secondary school.

The researcher used statistical correlation coefficients to compare between students responses of the two groups. The researcher chooses Arabic language grammar and literature to be the fields of the study. Arabic grammar and literature contain specific areas of critical thinking skills identified in the research. Arabic grammar is the tool in modifying the Arabic tongue and devise grammar rules (Abu- Dabat, Z 2007, P.272).

Arabic literature is the artistic heritage and linguistic science that has been accumulated over the centuries and presented and reflected Arabic life in all its forms, shapes and colours (Abu-Magli, 1999).

The researcher also selected eight schools west of the city of greater Amman. Four primary schools and four secondary schools, divided between public and private schools, males and females in each grade. The number of students consisted of forty from each stage, chosen in an orderly manner.

### **Results of the study**

To answer the previous questions and verify the validity of the assumptions, appropriate tests were used and the results are demonstrated in the tables below.

To answer the first question: to what extent do learning strategies and teaching methods contribute in the forming of critical thinking skills among students in both primary and secondary stages.

Averages and standard deviations of the five dimensions been extrapolated and the table below shows the results,

**Table (1)**

Averages and standard deviations of critical thinking skills available among the students in both primary and secondary stages.

No.	Dimention	Primary S.	X	SD.	Secondary S.	X	SD	T	SS	p
1	Analysis		11.00	2.20		13.50	4.16	3.7	0001	0.05
2	Evaluation		10.20	2.00		13.25	3.74	2.7	0.007	0.05
3	Inference		11.20	2.20		13.40	3.47	2.4	0.014	0.05
4	Conclusion		12.00	2.95		13.26	3.51	1.9	0.105	0.05
5	Extrapolation		11.20	2.20		12.24	3.47	2.4	0.015	0.05
	<b>Total</b>		<b>55.60</b>	<b>11.55</b>		<b>65.68</b>	<b>18.35</b>	<b>3.8</b>	<b>0.017</b>	<b>0.05</b>

From the above table, it is clear that teaching strategies and teaching methods, contributed in the format of critical thinking skills among the students with a medium degree in secondary stage and a low degree in primary stage. If we take into consideration that the degree of success is an average of 50%. Thus we reject the first hypotheses.

To answer the second question: If there was any development of critical thinking skills among students of secondary stage, the researcher used T. test independent to examine the differences between students' scores in both stages.

The above schedule indicated that there were no statistical significant deviations in the scores of four dimensions being, analysis, evaluation, inference and extrapolation, but there was little differences in conclusion dimensions in favor of secondary stage results. On the other hand, the arithmetic average marks and the standard deviation of all dimensions were nearly equal.

To answer the third question, the researcher also used a T .test independent sample to acknowledge the differences between the results of male and female students in both primary and secondary schools.

Table No.(2) clarifies the results:

**Table (2)**

<b>Dimintions</b>	<b>X Male</b>	<b>X female</b>	<b>S.D Male</b>	<b>S.D Female</b>	<b>T.</b>	<b>D.of Freedom</b>	<b>S.S</b>	<b>P.</b>
<b>Analysis</b>	<b>12.73</b>	<b>14.28</b>	<b>4.49</b>	<b>3.81</b>	<b>1.68</b>	<b>78</b>	<b>0.096</b>	<b>0.05</b>
<b>Evaluation</b>	<b>13.20</b>	<b>13.35</b>	<b>4.05</b>	<b>3.45</b>	<b>0.178</b>	<b>78</b>	<b>0.859</b>	<b>0.05</b>
<b>Inference</b>	<b>13.3</b>	<b>13.78</b>	<b>3.28</b>	<b>3.66</b>	<b>0.985</b>	<b>78</b>	<b>0.337</b>	<b>0.05</b>
<b>Conclusion</b>	<b>13.15</b>	<b>13.38</b>	<b>2.73</b>	<b>4.18</b>	<b>0.285</b>	<b>78</b>	<b>0.776</b>	<b>0.05</b>
<b>Extrapolation</b>	<b>11.95</b>	<b>12.53</b>	<b>3.55</b>	<b>3.40</b>	<b>0.739</b>	<b>78</b>	<b>0.462</b>	<b>0.05</b>
<b>Total</b>	<b>61.00</b>	<b>66.97</b>	<b>15.42</b>	<b>16.47</b>	<b>1.67</b>			

The above table indicated that there were no statically significant differences in the way of critical thinking male and female in the over all critical thinking skills in both primary and secondary stages. Thus, we agree the third hypothesis emphasized that there is no statistical significant relationship between the results of students in both stages.

To answer the fourth question, about critical thinking skills among students in public and private schools, the researcher also used a T test independent and the results were in table (3) as follows:

**Table 3**

<b>Dimintions</b>	<b>Type of schools</b>	<b>X</b>	<b>S.D</b>	<b>T. test</b>	<b>D .of Freedom</b>	<b>S.S</b>	<b>P.</b>
<b>Analysis</b>	<b>Public</b>	<b>11.90</b>	<b>4.88</b>	<b>3.70</b>	<b>78</b>	<b>0.001</b>	<b>0.05</b>
	<b>Private</b>	<b>15.10</b>	<b>2.46</b>				
<b>Evaluation</b>	<b>Public</b>	<b>12.15</b>	<b>4.32</b>	<b>2.80</b>	<b>78</b>	<b>0.006</b>	<b>0.05</b>
	<b>Private</b>	<b>14.40</b>	<b>2.66</b>				
<b>Inference</b>	<b>Public</b>	<b>12.48</b>	<b>3.82</b>	<b>2.46</b>	<b>78</b>	<b>0.016</b>	<b>0.05</b>
	<b>Private</b>	<b>14.38</b>	<b>2.85</b>				
<b>Conclusion</b>	<b>Public</b>	<b>12.63</b>	<b>3.85</b>	<b>1.64</b>	<b>78</b>	<b>0.105</b>	<b>0.05</b>
	<b>Private</b>	<b>13.90</b>	<b>3.05</b>				
<b>Extrapolation</b>	<b>Public</b>	<b>11.38</b>	<b>3.49</b>	<b>2.57</b>	<b>78</b>	<b>0.012</b>	<b>0.05</b>
	<b>Private</b>	<b>13.20</b>	<b>3.21</b>				

<b>Total</b>	<b>Public</b>	<b>58.63</b>	<b>16.97</b>	<b>3.34</b>	<b>78</b>	<b>0.002</b>	<b>0.05</b>
	<b>Private</b>	<b>69.35</b>	<b>13.42</b>				

The table above showed that there are no statistically significant differences in pupils responses in both stages to the questions related to four of the dimensions of critical thinking skills namely, analysis, evaluation , inference and extrapolation That is because the value of S.S.D. was less than (0.05), but concerning the conclusion dimension the study revealed a S.S.D is in favor of private schools .

The researcher rejected the fourth hypotheses. The results of the study indicated some differences between the two types of schools in practicing the dimensions of the critical thinking skills, this is because the private schools changed some existing teaching strategies, or perhaps, the teachers at those schools used the latest methods of teaching than those used in public schools.

To answer the fifth question: Which of the five cognitive dimensions have received a greater response from students? The highest skills in the secondary school were as follows:

The analysis was 67.5% followed by inference 65% , then the evaluation 66.5% followed by conclusion 66.3% finally induction or extrapolation 61.% .That means the average of the whole scores were 65.68% . In the primary school the highest scores were as follows: conclusion was 60% followed by inference and extrapolation 56% and analysis 55% Finally, the evaluation score was 51% that means the average of the whole scores was 55.60%.

From the above scores and averages, its clear that the dimensions of critical thinking skills had been developed in the secondary schools and the same dimensions were low in general at primary schools as shown in table(1).

### **Discussion of the results:**

The results of the two exams showed that the teachers in primary and secondary stages had tried to apply the strategies of teaching methods to achieve the aims and objectives of education formed by the Ministry of education in Jordan, but in a satisfactory manner. The teachers had used

the same strategies and methods in teaching with no differences in this respect between public and private schools.

The study also showed that the students of secondary stage responded to the five dimensions with some improvements and those dimension developed and witnessed some progress in students responses and answers the questions of the exam, which means that the students got and achieved more experience and was aware of the importance of such skills, influenced by the awareness of there teachers about critical thinking skills in Arabic language.

### **Recommendations:**

- 1) The teacher should try various strategies of teaching methods in both stages primary and secondary stages, in order to stimulate and reinforce student's skills especially in the previous dimensions.
- 2) The need for diversification in the use of appropriate and educational technology.
- 3) The need for further research on teaching methods and useful strategies used to achieve the objectives of education in Jordan.
- 4) The need for contentious training for teachers to improve their performance.

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