



Available online at www.jlls.org

JOURNAL OF LANGUAGE AND LINGUISTIC STUDIES

ISSN: 1305-578X

Journal of Language and Linguistic Studies, 18(4), 1257-1267; 2022

Effectiveness: Models Of Dick, Carrey And Fryer In Developing The Concepts And Reflective Thinking Of The Fifth Scientific Student Towards The Subject Of Grammar

Natiq Saeed Ghayyib

Asst. Prof., Open Educational College, Diyala Province, Iraq.

dr.natik64@gmail.com

APA Citation:

Models Of Dick, Carrey And Fryer In Developing The Concepts And Reflective Thinking Of The Fifth : Ghayyib, N.S., (2022). Effectiveness Scientific Student Towards The Subject Of Grammar , *Journal of Language and Linguistic Studies*, 18(4), 1257-1267; 2022.

Submission Date: 05/11/2022

Acceptance Date: 26/12/2022

Abstract

The number of the research sample was (150) male and female students were distributive as follows: (32) students for the first experimental group, (40) female students for the second experimental group, (38) female students for the third experimental group, and (40) female students for the fourth experimental group. In order to achieve the goal of the research and to choose its hypotheses, the first research tools must be present: the selection of Arabic grammar concepts, which consisted of (30) paragraphs, and the second tool: the selection of reflective thinking skills, which consisted of (20) objective paragraphs of the type of multiple choice. The results showed the superiority of the model (Frayer) in developing the concepts of Arabic grammar, and there is a convergence in the skills of reflective thinking according to the two models (Dick, Carey and Fryer).

Keywords: Dick, Carrey and Fryer's Concepts of Thinking activity.

Introduction:

At the beginning, the researcher reviewed the secondary education worksheet and he noticed a noticeable drop in the students' scientific levels, including the low level of general concern, and the weakness of their enthusiasm towards achieving scientific success for most of the academic subjects, including the Arabic language (Ministry of Education, 10: 1995). In line with the changes of the times in the various educational fields and technology, we must choose a successful alternative in the educational policy (Al-Rubaie, 2006:1), by finding diversity in methods, methods and educational models that will be reflected in the outcomes of teaching the Arabic language in the best way and leaving the teacher's lessons to be Informed of the information. Hence the problem of the research was manifested if the researcher formulated the research problem with the following question (What are the effectiveness of the Dick, Carrie and Fryer models in developing the concepts and reflective thinking of the fifth scientific student towards the subject of grammar?).

EMAIL dr.natik64@gmail.com

Since education aims to use modern methods of teaching and various models that provide learners with opportunities to develop cognitive, emotional and skill aspects by interacting with educational situations as basic pillars for developing thinking and developing concepts using appropriate strategies that help them to research and conclude (Ministry of Education, 2: 2003). For this reason, the researcher decided to use the models (Dick, Carrey, and Fryer), and one of the characteristics of the (Dick and Carrey) model is based on determining the behavior of the skills of learners, and it aims to develop and develop teaching design skills for all levels of study (Al-Rawdiyah and others, 187:2012) and one of its steps is :

- 1- Defining the general goals: that is, achieving an educational goal (Al-Falih and others, 138: 2009).
- 2- Analyzing the educational tasks: whether cognitive, emotional or skill (Saraya, 80, 2007).
- 3- Determining the behavioral goal: that is, the formulation of a clear and specific goal (Al-Falih and others, 139: 2009).
- 4- Building a verbal or performance assessment test: It is a direct measure of behavior, whether it is at the end of the lesson or during the course of the lesson, and the spoken test is a pre-test to achieve the goals before the start of the lesson in order to determine the program or method that suits their abilities and aptitude (The Cheat, 103: 2003).
- 5- Choosing an education strategy: it includes activities, information presentation, exercises, and exams according to the nature of the content (Al-Falih and others, 139:2009).
- 6- Choosing educational materials and aids: to meet the needs of learners (Mohammed and Reem, 2011:34).
- 7- Formatting the evaluation design: that is, data collection, analysis, and review (Al-Rawdiyah and others, 141: 2012).
- 8- Issuing a judgment and reviewing all design steps which considered the final evaluation process: (Al-Falih et al., 141, 2009).

Regarding the Fryer model the learner is active when s/he learns any concept and taking into account the level of learners and their previous experiences (Shawq, 18:1989). This is divided into the following steps:

- 1- Presentation of the concept
- 2- Define the concept
- 3- Identify the characteristics of the concept
- 4- Identify positive and negative examples
- 5- Recognize the changing characteristics of the concept
- 6- Presentation of the main concept
- 7- Introducing sub-concepts. (Fyyer, 1970: p14).

Concepts are a necessity for cognitive behavior in expanding the learner's experience, and constitute the basis for building principles, theories and higher thought processes, and help in linking events to clarify interrelationships and make them meaningful (Khidir. 325:2006). The talk about reflective thinking and its role in the educational process is not lacking in research and investigation. It is a gift from the Mighty, the Almighty, and the Most High, and a gift to man to represent freedom of choice in solving problems and making appropriate decisions (Al-Jallad, 2011: 182). It is considered the finest form of mental activity (Abu Jad and Nofal, 29:2014), as it contributes to solving problems and helps learners to analyze topics, communicate and interact in the development of their abilities and skills (Al-Ayasrah, 213:2011).

From the foregoing, the current research reveals the following:

- 1- The importance of exemplary (Dick and Carrie, Fryer) in developing reflective thinking and concepts

- 2- Choosing dependent variables (thinking, gender variable concepts) as a necessary variable for teaching Arabic grammar in the preparatory stage to provide an element of excitement and suspense to raise the cognitive level of students
- 3- The interest of the Ministry of Education in the use and development of modern methods, methods, models and strategies in directing students' thinking
- 4- The importance of dealing with the development of the concept and the need to build it for students.

Research Aim:

The current research aims to identify: (The effectiveness of the model Dick, Carrie and Fryer in developing concepts and reflective thinking among fifth-grade science students towards grammar).

Research Hypotheses:

To achieve the goal of the research, the researcher clarified the two main hypotheses and their ramifications:

- 1- The first main hypothesis: There is no statistically significant difference at the level (0,05) between the average degrees of the research groups' development of the concepts of rules according to the model and gender variables and the interaction between them.
 - The first sub-hypothesis: There is no statistically significant difference at the level (0,05) between the average degrees of development of the two research groups for the concepts of rules due to the model variable (Dick, Carey, Fryer).
 - The second sub-hypothesis: There is no statistically significant difference at the level (0,05) between the average degrees of the research groups' development of the concepts of rules for the gender variable.
 - The third sub-hypothesis: There is no statistically significant difference at the level (0,05) between the average degrees of the research groups' development of the concepts of rules according to the model and gender variable.
- 2- The second main hypothesis: There is no statistically significant difference at the level (0,05) between the average degrees of the research groups' development of their reflective thinking according to the model variable, gender, and the interaction between them.
 - The first sub-hypothesis: There is no statistically significant difference at the level (0,05) between the average degrees of the research groups' development of their reflective thinking according to the model variable (Dick, Carey, Fryer).
 - The second sub-hypothesis: There is no statistically significant difference at the level (0.05) between the average degrees of the research groups' development of their reflective thinking according to the gender variable.
 - The third sub-hypothesis: There is no statistically significant difference at the level (0.05) between the average degrees of the research groups' development of their reflective thinking according to the model and gender variable.

Research limits:

- 1- A sample of the fifth scientific grade students in Diyala governorate
- 2- The second semester
- 3- A number of topics of the Arabic grammar book for the fifth grade scientific to be distributed for the academic year (2019) for the 29th edition (2016), and the topics are (case, excellence, true and causal adjective, and kindness).

Research Methodology and Procedures:

First: Choosing the experimental design:

The researcher chose the factorial experimental design (2×2) because the current research includes two independent variables:

The model and gender, and each of them has two levels, and the design consists of four groups, two groups for males and two groups for females, and Table No. (1) shows this:

Table (1) Experimental Design

Experimental Group	Independent variable		Pre-Test	Dependent variable
	Gender	Model		
First Group	Males	Dick and	Skills Thinking	Arabic Grammar Concepts and the reflective thinking skills
Third Group	Females	Carrie		
Second Group	Males	Fries	Contemplative	
Fourth Group	Females			

Second: Research sample:

The students of Muqdadiya schools for the academic year (2018-2019) of the Diyala Orientation Directorate are represented by intentional selection, due to the cooperation of school administrations with the researcher.

Third: the research population:

It consists of Imam Ali High School for boys to represent the first experimental group, Al-Miqdadiya high school for girls to represent the third experimental group, who study according to the Dick and Carey model, and Abi Hanifa high school for boys to represent the second experimental group, and Risalat al-Islam high school for girls to represent the fourth experimental group who study according to the Fryer model. . The researcher excluded the students who failed because they had previous experience, so the research sample was (150) male and female students, and Table No. (2) illustrates this.

Table (2) The number of students of the four research groups before and after exclusion.

Schools	Experimental Group	Students before exclusion	Failed Students	Students after exclusion
- Imam Ali Boys High School	1 st Males	37	5	32
- Abi Hanifa high school for boys	2 nd Males	48	8	40
- Miqdadiya high school for girls	3 rd Females	40	2	38
- Risalt Al-Islam High School for girls	4 th Females	43	3	40
Total	4	168	18	150

Fourth: Research Groups Equation:

The researcher rewarded the four research groups in the variable of tribal reflective thinking skills test, which is the degree of preparation of the individual through the experiences, information and skills that he takes from

the surrounding environment (Abu Jadu, 2011: 317). Finally, the researcher reviewed the Norton equivalence measure, it was presented to a group of experts and arbitrators, and Table No. (3) illustrates this.

Table (3) The arithmetic mean and standard deviation of the research sample in the pre-reflective thinking skills test variable.

Experimental Group	Gender	No.	SMA	Standard deviation
First Group	Males	32	19,56	5,81
Second Group	Males	40	19,62	6,99
Third Group	Females	38	20,42	5,79
Fourth Group	Females	40	21,42	4,93

The researcher applied the one-way analysis of variance test for the purpose of equivalence, and Table No. (4) illustrates this.

Table (4) analysis of variance for the pre-reflective thinking skills test variable for the research sample.

Diversity	Squares No.	Freedom Degree	Remote Value		Significance level at (0.05)
			Calculated	Tabular	
Between groups	86,80	3	0,82	2,60	equal
Within groups	5148,28	146			
Total	5235,90	149			

It is clear from Table (4) that the calculated remote value is (0.05) and with a degree of freedom (146), and this means that there is no statistically significant difference between the average scores of the four research groups, and thus they were considered equal.

Fifth: Research requirements:

1. Content Determination:

The researcher selected (4) topics for experiment

The academic year (2018-2019) and Table No. (5) illustrate this.

Table (5) topics of Arabic grammar for the fifth scientific grade

No.	Topic	Page
1	Manner	73
2	Discriminate	80
3	Adjective	85
4	Conjunction	98

2. Formulating Dehsrioral Objections:

It is important because it shows the type of tool or behavior expected of the learner to learn (Ibrahim, 1986: 88), the researcher formulated (30) behavioral objectives. For the purpose of confirming it, it was presented to experts specialized in the Arabic language and its teaching methods. The researcher adopted a percentage of (80%) for the first topic (9) goals, the second topic (7) goals, the third topic (8) goals, and the fourth topic (6) goals.

3. Preparing teaching plans:

It works to organize the educational process inside and outside the classroom and reduces the efforts made by the teacher and the learner (Al-Amin et al., 1997: 230). Therefore, the researcher prepared the teaching plans for the four topics to be taught, then the researcher presented them to a group of experts and arbitrators.

Sixth: Research Tools:

1. Building a test of Arabic grammar concepts.

Since there is no ready conceptual test for Arabic grammar within the limits of the research, the researcher prepared a test after reviewing the studies and literature and used the objective test, which is choosing the answer from multiple, placing a true or false sign, or drawing a circle (Al-Zayoud and Alyan, 2005: 86). These tests are characterized by high stability, far from the defects of self-assessment (Al-Gharib, 1996: 281). The researcher formulated (30) paragraphs divided into three questions, ten paragraphs for each question.

3- Preparing the specification table:

It is to give a comprehensive and objective character to the topics of the lesson and its objectives to achieve behavioral changes (Zaghloul, 2012: 337). According to the three levels of Bloom's classification, according to the percentage leading to each subject, and the test was determined by (30) paragraphs and with a total percentage of (100%), and Table No. (6) illustrates this.

Table (6) The relative importance of the concepts development test specifications according to the first three Bloom levels.

Topics	Concepts No.	Relative importance	Behavioral Goals				Paragraph Numbers		
			Knowledge	Understanding	Application	Total	Knowledge	Understanding	Application
Manner	8	0.27	3	2	3	8	1,5,6	15,16	24,26,28
Discriminate	7	0.23	2	3	2	7	6,7	14,18,20	22,23
Adjective	9	0,30	3	3	3	9	3,8,10	11,13,17	21,27,30
Conjunction	6	0,20	2	2	2	6	2,4	12,19	25,29
Total	30	%100	10	10	10	30			

4- Building reflective thinking skills tests:

The researcher formulated the test paragraphs of the type of multiple test for ease of correction, objectivity and stability. The test included four paragraphs, and each paragraph included five questions, bringing the total of test questions (20) questions Table (7) The development of reflective thinking skills.

Skills	Example numbers within each paragraph			
	First	Second	Third	Fourth
visual viewing	1	6	11	16
Statement of fallacies	2	7	12	17
reach conclusions	3	8	13	18
give explanations	4	9	14	19
Develop suggested solutions	5	10	15	20

5- Validity of the test of concepts and reflective thinking skills:

In order to verify the apparent honesty, the researcher presented it to experts, arbitrators, and specialists in the Arabic language and its teaching methods. The percentage of agreement was (80%) or more as a criterion for accepting the paragraph.

6- Applying the test to the pilot test:

It is the application of an exploratory experiment on a sample of students to find out the time taken for the test and to diagnose the paragraphs in terms of ambiguity, difficulty or ease (Al-Ajili et al.: 2001: 66). Therefore, the researcher conducted a test on (40) male and female students from the fifth scientific grade of Al-Farouq School for Boys and Tal Al-Za`tar School for Girls to develop concepts and reflective thinking.

7- Statistical Analysis of the Items

It is a summary of students' responses to each of the test items, knowing how difficult or easy each item is, and detecting the effectiveness of the wrong alternatives.

8- Test Reliability

It is to give similar or the same results if it is applied more than once in similar circumstances (Al-Zayoud and Hashem: 2005: 145).

9- Procedures for applying the experiment:

The researcher applied the post-application test for developing Arabic grammar concepts on the research sample on Thursday (29/29/2019) and the other test for developing reflective thinking skills with a pre-application before starting the experiment and post-test on Monday (6/5/2019). The same researcher studied the four groups according to the teaching plans he prepared.

10- How to correct the test:

- A. Concept development test - it consists of (30) items, and the researcher has given a score of (1) for the correct answer and (zero) for the wrong or left over answer, or indicating more than one alternative, and thus the score ranged between (0-30).
- B. The test of developing reflective thinking - the test consists of (20) questions, and the researcher has given a score of (1) for the correct answer and (zero) for the wrong or left out answer, or indicating more than one alternative, and thus the score ranged between (0-20).

Presentation and interpretation of results

1- The first major null hypothesis and its ramifications:

To verify them in developing the concepts of Arabic grammar, and Table (8) shows this.

Table (8) Arithmetic mean and standard deviation of a sample of research groups in the development of Arabic grammar concepts according to the model and gender variable.

Gender	Model	Experimental Group	No.	SAM	Standard deviation	Total	The total arithmetic mean of the sex
Males	Dick, Curry and Fryer	First	32	39,56	6,52	72	42,09
		Second	40	44,12	6,29		
Females	Dick, Curry and Fryer	Third	38	42,81	5,97	78	43,6
		Fourth	40	44,47	7,20		
Model		First and Third	70	41,32	6,35	150	42,9

	Dick, Curry and Fryer	Second and Fourth	80	44,30	6,90		
--	--------------------------	-------------------------	----	-------	------	--	--

Then the researcher applied the two-way analysis of variance on the main hypothesis and its sub-hypothesis, and Table No. (9) illustrates this.

Table (9) Binary variance analysis of the development variable of Arabic grammar concepts.

Diversity	Squares No.	The mean of the sum of squares	Freedom Degree	Remote Value		Significance level at (0.05)
				Calculated	Tabular	
Model	358,8	358,8	1	8,4	3,8	Statistical at (0.05)
Gender	120,8	120,8	1	2,8		
Model + Gender	78,3	78,3	1	1,8		
The Error	6217,9	42,5	146			
Total	6767,9		149			

It is clear from Table (9) that the calculated value of the model variable reached (4,8) is greater than the tabular value of (8,3) at a significance level of (0,05) and a degree of freedom (1-146), and this means that there is a difference of Statistical significance in favor of the Fryer model. Thus, the first sub-hypothesis is rejected and the alternative is accepted. Thus, the researcher attributes to the effectiveness of the Fryer model, which develops in students several types of intelligence by identifying meaningful principles for the concepts of Arabic grammar.

Table No. (8) showed that the arithmetic mean of the sample of the two groups (the first is male) and (the third is female), which were studied according to the (Dick and Carey) model, there is an appropriate percentage of understanding the development of concepts, as the researcher attributes to the students' interaction and their eagerness for the study material from During the presence of a social atmosphere that encourages the opportunity to develop the desire to learn concepts.

As for the second sub-hypothesis, it is clear from Table (9) that the calculated t-value for the gender variable was (8,2) less than the tabular remote value of (3.8) at its significance level (0.05) and in terms of freedom (1-146), which means There is no statistically significant difference between the average scores of male and female group students, and thus the hypothesis is accepted and the alternative is rejected.

As for the result of the third sub-hypothesis, which is the interaction of the model and sex, the calculated t-value of (1.8) was less than the tabular remote value of (3.8) at a significance level of (0.05) and at a degree of freedom (1-146). This means that there is no statistically significant difference between the average scores of the students of the four groups of males and females, and thus the hypothesis is accepted and the alternative is rejected. The researcher attributes that the two variables work independently and are not affected by the other variable, meaning that the level of students' development of the concepts of Arabic grammar is close.

2- The second major null hypothesis and its ramifications:

To verify this main hypothesis in developing reflective thinking skills, Table No. (10) shows this:

Table No. (10) The arithmetic mean and standard deviation of a sample of research groups in developing reflective thinking skills for the model and gender variable.

Gender	Model	Experimental Group	No.	SAM	Standard deviation	Total	The total arithmetic mean of the Gender
Males	Dick and Carrie	First	32	8,21	5,78	72	7,48
	Fryer	Second	40	6,90	3,87		
Females	Dick and Carrie	Third	38	3,34	3,24	78	3,46
	Fryer	Fourth	40	3,57	2,08		
Model	Dick and Carrie	First and Third	70	5,57	5,12	150	5,39
	Fryer	Second and Fourth	80	5,32	3,49		

Then the researcher applied the two-way analysis of variance to the main hypothesis and its sub-hypothesis, and Table No. (11) illustrates this:

Table (11) Binary variance analysis of the variable of developing reflective thinking skills.

Diversity	Squares No.	The mean of the sum of squares	Freedom Degree	Remote Value		Significance level at (0.05)
				Calculated	Tabular	
Model	10,9	10,9	1	0,7	3,8	Statistical at (0.05)
Gender	625,3	625,3	1	41,8		
Model + Gender	22,3	22,33	1	1,4		
The Error	2181,3	14,9	146			
Total	2840,0		149			

Table No. (11) illustrates that the calculated maxima of the model variable (0.7) is less than the tabular maxima value (3.8) at a significance level of (0.05) and a degree of freedom (1-146), and this means that there is no significant difference Statistical between groups averages.

The research depends on the model variable, and thus accepts the first sub-hypothesis and rejects the alternative, and the researcher attributes to the convergence of the average degrees of developing thinking skill to the fact that both models have an impact on developing reflective thinking skills. Whereas the second sub-hypothesis of the gender variable, we find that the calculated absentee value (41.8) is greater than the tabular t-value (3,8).

At the level of significance (0.05) and the degree of freedom (1-146), this means that there is a statistically significant difference between the pressures of the degrees of developing thinking skills in favor of the students, and thus rejecting the hypothesis and accepting the alternative. The researcher attributes that the students had the desire and the impulse to practice thinking skills in the strength of visual observation and conclusion, the students' integration into society and the freedom to deal more than the females.

As for the third sub-hypothesis with the interaction of the model and gender, we find that the calculated t-value (1.49) is less than the tabular t-value (3.8) at a significance level (0.05) and a degree of freedom (1-146), which means that there is no statistically significant difference. between the sample averages of the four groups. Thus, the hypothesis is accepted and the alternative is rejected. The researcher attributes the absenteeism to the fact that both of them work alone and are not affected by the brother variable. This describes

that the level of thinking development was different for both males and females, close to the two models and not statistically significant, and thus the reflective thinking of males is greater than that of females.

Conclusions: In the current results model, the researcher concluded the following:

- 1- The effectiveness of the Fryer model in developing the concepts of Arabic grammar.
- 2- There is convergence in the development of the concepts of Arabic grammar for male and female students.
- 3- The skill of reflective thinking in males is more interactive and responsive than what is in the female group.
- 4- There is convergence in the skills of reflective thinking according to the two models among students of the fifth scientific.

Suggestions: To complement the current research, the researcher suggests conducting the following studies:

- 1- Conducting a study similar to the current study in other stages of study
- 2- Conducting a study similar to the current study in other branches of the Arabic language
- 3- Conducting a study similar to the current study in the aspects of collection, information retention, or direction.

Resources

Abd al-Ridha, Najdat Abd al-Raouf (2003) The impact of the important use of maps and stereoscopic models on the acquisition of geographic concepts and skills by fifth-grade students (unpublished doctoral thesis), College of Education, Ibn al-Rushd, University of Baghdad.

Abujadou, Salih Muhammad, Ahmed Bakr Nofal (2013) Teaching Theoretical Thinking and Application, 4th Edition, Dar Al-Missar for Publishing and Distribution, Shaaran, Jordan.

Al Zaghoul, Imad Abdel Rahim (2012) Principles of Educational Psychology, 2nd Edition, University Book House, Al Ain, Emirates.

Al-Ajili, Sabah Hussein and others (2001): Principles of Educational Measurement and Evaluation, 1st edition, National Library, Baghdad.

Al-Ameen, Shaker Mahmoud and others (1997) Principles of Teaching Social Subjects, 6th Edition, Al-Safadi Press, Baghdad

Al-Ayasra, Walid Rafeeq (2011): Strategies for Teaching Thinking and Skills, 1st Edition, Dar Osama for Publishing and Distribution, Amman, Jordan.

Al-Dujaili, Muhammad Abbas Mal Allah (2010) The effect of the John Claire model on the achievement of second grade students and their motivation towards physics, (unpublished master's thesis), College of Education, Abi Al-Haytham, University of Baghdad

Al-Fatlawi, Suhaila Mohsen Kazem (2003): Introduction to Teaching, 1st Edition, Dar Al-Shorouk for Publishing and Distribution, Amman, Jordan.

Al-Fulaij, Khaled Abdel-Aziz and others (2009): Teaching design between theory and practice, 1st edition, The Modern World of Books, Amman, Jordan.

Al-Gharib, Ramzia (1996): Evaluation and Psychological and Educational Measurement, 1st Edition, Anglo Egyptian Bookshop, Egypt.

- Al-Hila, Muhammad Mahmoud (2003), *Teaching Design, Theory and Practice*, 12th Edition, Dar Al-Masirah for Publishing and Distribution, Amman, Jordan.
- Al-Jallad, Majed Zaki (2011) *Skills of Teaching the Holy Qur'an*, 2nd Edition, Dar Al-Mayeser for Publishing and Distribution, Amman, Jordan.
- Al-Rawwanayah, Salih et al. (2012) *Technology and Teaching Design*, 1st edition, Zamzam Publishers and Distributors, Amman, Jordan.
- Al-Rubaie Mahmoud Salman (2006) *Contemporary Teaching Methods and Methods*, 1st Edition, The World of Modern Books, Irbid, Jordan.
- Al-Zayoud, Nader Fahmy, and Hashem Amer Alian (2005) *Principles of Measurement and Evaluation in Education*, 3rd Edition, Dar Al-Fikr, Jordan.
- brahim, Fawzi Taha and Rajab Ahmed Al-Kalza (1986) *Contemporary Curricula*, 2nd Edition, University Student Library, Makkah Al-Mukarramah
- Hoopr , T .(1993) : The effect of cooperative leaning and lean control on high - and average ability students. *Education Teaching Research and Development* , vol(41) ,No.2
- Khader Fakhri Rasheed (2006) *Methods of Teaching Social Studies*, 1st Edition, Dar Al Masirah for Publishing and Distribution, Amman, Jordan.
- Labib, Rushdi and others (1983): *Instructional means*, 1st edition, Dar Al-Masirah for publication and distribution, Amman, Jordan.
- Mari, Tawfiq Ahmed, Muhammad Mahmoud Al-Haila (2002): *General Teaching Methods*, 1st Edition, Dar Al-Masir for Publishing and Distribution, Amman, Jordan.
- Ministry of Education (1995): *Secondary Education Working Paper*, Iraqi Ministry of Education Press, Baghdad.
- Ministry of Education (2003): *Home Page (Teacher)*, Kingdom of Saudi Arabia, International Information Network.
- Muhammad, Wael Abdullah, and Reem Ahmed Al-Azim (2011): *Designing the School Curriculum*, 1st Edition, Dar Al-Masira for Publishing and Distribution, Amman, Jordan.
- Qatami, Youssef and others (2008): *Teaching Design*, 3rd Edition, Dar Al-Fikr Publishers and Distributors, Amman, Jordan.
- Saraya, Adel (2007) *Instructional Design and Meaningful Learning*, 1st edition, Dar Al-Ilm for Millions, Beirut, Lebanon.
- Shawq, Mahmoud Ahmed (1989) *Modern Trends in Teaching Mathematics*, Mars Publishing House, Saudi Arabia.
- Shehata, Hassan and Zainab Al-Najjar (2003) *A Dictionary of Educational and Psychological Terms*, The Egyptian Lebanese House for Printing, Publishing and Distribution, Cairo, Egypt.
- Suleiman Arafat Abdel Aziz (1982) *Teacher and Education*, 2nd Edition, Anglo Egyptian Bookshop, Cairo.