

# The Role of Teachers in Developing Students' Science Creative Thinking Skills in Jordan and Sultanate of Oman

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## ABSTRACT

The study aimed to identify the degree to which science teachers developed school students' creative thinking skills in Jordan and Sultanate of Oman. It also aimed to find out if the teachers' role in developing school students' creative thinking skills differed as per their work place (Jordan and Oman) and whether or not there were statistically significant differences at the significance level ( $0.05=\alpha$ ) in the teachers' role in developing school students' creative thinking skills from the perspective of teachers attributed to the variable of teaching experience. To achieve the study objectives, the descriptive survey approach was used through developing a questionnaire with 31 statements which was distributed to a sample of 140 teachers teaching science to grades 4 to 8 in public schools in Jordan and Sultanate of Oman in the academic year 2021 – 2022. 5- point Likert scale was used to analyze the data collected. The findings showed that primary education science teachers practiced creative thinking skills with their students to a high degree as the mean of their responses to the questionnaire statements was 3.43 with a standard deviation 1.12. There were no statistically significant differences in the science teachers' response means in Jordan and Oman. However, there were statistically significant differences at the significance level ( $0.05=\alpha$ ) in the teachers' response means in favor of the female teachers whose response mean was 4.25 which was higher than the male teachers' response mean which was 3.35. This result might be attributed to a number of factors such as women in Arab societies try to prove themselves and try to prove that they are more distinguished than men. In light of the findings, the study recommended adopting teaching strategies that develop students' creative thinking skills, supporting teachers who develop these skills and generalizing these findings to other educational stages.

## KEYWORDS

teacher; students; developing student; creativity; creative thinking skills

## INTRODUCTION

No one can deny the amazing developments which the information revolution in the twenty-first century has made in our contemporary life. This revolution has turned concepts which have prevailed in the world for centuries upside down. Accordingly, all institutions including educational institutions have to adjust to the developments of contemporary life dictated by the information revolution in terms of quality assurance and accreditation. Creativity and innovation have become real goals and requirements for developing society and its individuals' capabilities using its resources well. In the light of

increasing global changes which the world is witnessing, there is no way to succumb to postulates. If creativity and caring for developing it are important to developed countries, they are more important and pressing for developing countries.

When creativity linked to management in general and school management in particular is used, it has many implications and interpretations related to a number of variables which might affect the educational process and the organizational behavior. Thus, investing in new ideas as well as developing and applying them to educational institutions should be explored. Administrative creativity should be collective and institutionalized, and as such, it is broader and more comprehensive than individual creativity. It means the ability to create methods and ideas which can be warmly received by those working in education and encourage them to invest in their abilities and talents to achieve organizational and educational objectives better and in a way that is more beneficial to the educational process in general (Al-Sadiyah, 2011).

Creativity, therefore, leads schools to renovation and development. Creative school principals are a major factor in the success of educational work. Creative teachers also encourage students to invest their abilities and talents in renovation and avoiding imitation. So, schools can keep abreast of the movement of civilizations and deal with new developments and interact with them positively. Creativity is also characterized by its ability to find new things which might be ideas or solutions. It enables educational administrators to achieve educational objectives effectively and efficiently (Abu Jamie & Al-Taweel, 2011).

### **Problem Statement**

Creativity in the educational process is one of the most important skills which must be mastered, understood and utilized by students in their life and at the academic and professional levels. It is a skill that feeds the future and inspires students into how to deal with life's situations. So, teaching students thinking strategies and methods is more important than teaching them what they think.

Here comes the teacher's role in instilling these skills in the minds and souls of students. This can be achieved while planning and designing lessons and during the execution stages in the classroom and finally in the assessment and feedback stage. The teacher's biggest role lies in providing an educational environment that is rich in educational tools and methods and things that motivate students to think, contemplate, criticize, ask questions and share how to find solutions with their classmates. This opens horizons before students and flares up honest competition among them and results in filling their minds with new, shining and creative ideas. Besides, teachers are responsible for removing limitations and providing necessary room for creative practices inside and outside classrooms. Limitations and traditional systems frustrate students a lot and nip creativity in the bud. As a result, societies lose a lot of human capital and energy which can contribute to the whole educational process and social development (Al-Sadiyah, 2011; Abu-Jamie & Al-Taweel, 2011).

Studies conducted by Al-Harathi (2014), Mohammad (2015) and Al-Hatmi (2016) showed that school creativity at the levels of the administration and teachers has still been lower than what is desired, although Jordanian Ministry of Education and Omani Ministry of Education focus greatly on school creativity at all levels. As researchers have a big role in diagnosing social and educational phenomena and suggesting solutions to solving and overcoming them, the present research aims to identify the degree to which science teachers developed school students' creative thinking skills in Jordan and Sultanate of Oman.

## Study Questions

The study seeks to answer the following questions:

1. What is the degree to which science teachers develop school students' creative thinking skills in Jordan and Sultanate of Oman?
2. Does teachers' role in developing students' creative thinking skills differ as per the workplace (Jordan, Oman)?
3. Are there any statistically significant differences at a significance level ( $\alpha=0.05$ ) in teachers' role in developing students' creative thinking skills from the perspective of teachers attributed to the variable of gender?
4. Are there any statistically significant differences at a significance level ( $\alpha=0.05$ ) in teachers' role in developing students' creative thinking skills from the perspective of teachers attributed to the variable of teaching experience?

## Study Objective

The study aims to identify the degree to which science teachers develop school students' creative thinking skills in Jordan and Sultanate of Oman.

## Significance of the Study

### *Theoretical significance*

The significance of this study stems from the importance of the field which it explores and addresses. So, the theoretical importance of the study lies in addressing the topic of creative thinking skills which represents one of the most remarkable types of thinking which must be developed and reinforced in school students. In addition, its significance lies in its attempt to identify the degree to which science teachers develop these skills in their students.

### *Practical significance*

It is hoped that this study opens up horizons which can help develop the educational process in schools. The researchers also hope that the following parties benefit from the study findings:

- Teachers through giving them feedback on the degree to which they develop their students' creative thinking skills;
- Decision makers in the Ministry of Education through adopting training programs to develop teachers' abilities and skills in understanding and applying creative thinking skills;
- Researchers and those interested in the educational field and postgraduate students through making use of the methodology of this study and its findings to conduct more studies on creative thinking skills.

## Study Limitations

There are a number of limitations for this study which might affect the generalization of its findings. The study was limited to a sample of primary education science teachers in Jordan and Oman who were 230 male and female teachers who were chosen randomly and who belong to Jordanian Ministry of Education and Omani Ministry of Education in the school year 2021-2022.

## **Study Terms**

**Primary education science teachers:** These are all male and female science teachers who teach science courses at the primary education stage (from Grade 4 to Grade 8) in public schools of Jordanian Ministry of Education and Omani Ministry of Education in the school year 2021 – 2022.

**Creative thinking skills:** These are a number of mental skills used by students to produce new, purposeful ideas and are classified into three fields (fluency, novelty and resilience). There are defined operationally as the score which teachers get in the creative thinking questionnaire designed by the researchers of the study.

## **Theoretical Framework and Previous Studies**

### *Creativity motives*

Al-Sweidan and Al-Adlwni (2004, pp. 21-25) referred to a number of motives for creativity such as:

- Internal motives which include enthusiasm to achieve personal goals, the desire to make innovative contributions and solve mysterious and complicated matters, the desire to experiment with more than one field of work, getting self-satisfaction and self-realization and meeting human needs better than before.
- Environmental motives (external) which are needed in various fields of work, liveliness and growth, overcoming general and private problems and quick change in the contemporary world.
- Material and moral motives which include getting a financial reward, appreciation, reputation, fame, a prestigious academic rank and an advanced career rank.
- Motives related to creative work which include a burning desire to find ideas and have them.

### *Characteristics of school environments which support creativity*

There are a number of characteristics which distinguish school environments that support creativity and which school administration should provide through its active roles in schools in terms of organizing the educational process, supervising, training and assessing teachers. These are as follows (Dirar, 2006, p. 334; Najm, 2003, p. 93):

- Availability of a school atmosphere which respects diverse ideas and guarantees freedom of expression, participation and work as a team.
- School objectives should be clear and specific with regard to developing creativity on condition teachers and non-teaching staff should be engaged in setting the objectives.
- Learning resources should be available and varied so as to provide a positive environment which motivates teachers and non-teaching staff and activates their potential.
- Teachers, students, parents and local communities should represent school management boards to a great extent, and positive relationships which support creativity should prevail.
- Assessment methods should not be traditional, and they should focus on assessing teachers and non-teaching staff's skills, abilities and behaviors to appreciate them and ensure they work to achieve the objectives of the educational process.

### *Stages of creativity*

Researchers emphasize that creativity go through specific stages, and some researchers mention four stages which are:

#### A. Preparation

This is the main seed of creativity which opens creative people's minds to the early beginnings of their work which often come all of a sudden (Aziz, 2013, p. 85). At this stage, creative people can get information, skills and experiences which enable them to address the topic of creativity, identify the problem, learn about its related aspects and the ability to compare it with previous problems to utilize it in generating solutions to the problem (Mudhawi, 2016, p. 105).

#### B. Incubation

At this stage, creative people are inactive and do not show any mental activity, but their minds understand all the information related to the problem and get rid of irrelevant information. This thinking stage is characterized by its being an internal process which does not reflect on people's visible or perceived behavior, but they perform these processes inside themselves and with themselves. This stage gives the mind the opportunity to get rid of anomalies and wrong ideas which can impede important parts of the mind (Al-Hweidi, 2006, p. 97).

#### C. Illumination

At this stage, ideas appear suddenly and unexpectedly. In other words, an immediate spark strikes which no direct, conscious effort affects. This stage is known as the moment in which the new idea is born which, in turn, leads to the solution of the problem. Therefore, this stage is considered the brain's accurate decisive work for creativity, and it can be called 'illumination', reorganization of experience, reformulation of the problem and building of ideas.

#### D. Verification

It is similar to the preparation stage in which what creative people have done is assessed. Creative people should care about their work which depends on a number of personal traits and mental abilities. At this stage, results are compared to the preparation stage and assessment and analysis are conducted until required objectives are realized. This stage is considered the last stage of creativity as final, desired results are obtained and creative people check and test their creative idea in terms of its originality, novelty and true usefulness in preparation for validating or documenting it in the field (Zaitoun, 2012, p. 184).

Creativity in human life in general and school life in particular is very important, and no one can deny its significance in raising students' performance and improving their abilities to adjust to the requirements of their age and live with the members of their society.

Schools are the basic block in building society which are capably of laying the foundations of creativity in teachers so that they can do their part in shaping the students according to these foundations.

Abu-Rayash (2016) conducted a study which aimed to explore the basic elements in the environment of educational creativity. The findings showed that it was possible to provide a typical environment which looks after creativity and encourages it and that it is not costly compared to its positive future results at the individual and institutional levels.

Wijdan and Abu-Asba (2018) did a study which aimed to identify who the good teacher was from the perspective of students and teachers. They used quantitative research and employed a questionnaire which was distributed to 70 students and 70 teachers. The findings showed the importance of creativity and the diversity of thinking methods for students as one main basis of the bases that define a good teacher from the perspective of teachers and students alike.

Sar (2017) conducted a study that aimed to identify motives for caring about creativity in the present age and the necessity of focusing on creativity in contemporary educational curricula. The study also aimed to identify the most important challenges facing schools in the Arab world in the field of creativity and encouraging students and teachers to care for creativity and focus on it in order to identify the most important methods of facing these challenges. The study depended on analyzing the documents which included creativity as a component of modern schools. The study recommended considering creative education a matter of existence which should have rational foundations and studying the provision of infrastructure and facilities in Arab schools. It also recommended that social partnerships should necessarily include all parts of society and educational institutions in an attempt to integrate efforts and create an environment that encourages creativity and seeks to develop and support it. Other recommendations were the necessity of paying attention to preparing teachers before they start teaching and the necessity of focusing on teachers' professional development while teaching and directing it towards creativity and providing a classroom environment that instigates students' creativity and encourages it.

Mohammad and Abdunasser Radhi (2015) carried out a study that aimed to identify the role of Qassim University in sponsoring creativity and encouraging students to be creative. The descriptive approach was used, and the sample consisted of 500 participants from faculty and students. The study showed that the roles of school leaders and principals in creative work are pivotal as they support creative students, motivate and honor them. The study pointed out that the defect in looking after creativity resulted from the rarity of educational supervisors and psychological experts who follow creative students closely and measure their creative abilities. The study highlighted some impediments to creativity such as lack of a clear policy for adopting creative people and those who have daring ideas who seek to develop them. The study recommended the necessity of putting the principle of ability to develop students' creativity as one standard to attract university leaders and rectors.

Mohammad (2015) carried out a study which aimed to identify the reality of creativity for students in some Jordanian schools from the perspective of teachers and school principals. The sample consisted of 140 respondents. The descriptive and analytical approach was used, and the study used a questionnaire designed for this purpose. The study showed that the reality of developing creativity for Jordanian school students was less than average.

So, it is obligatory that everyone should contribute anything, no matter how small it is, to raising the individual and institutional awareness of this fundamental issue at this critical time of the twenty-first century in which fountains of knowledge have sprung up and creativity has become the foundation of success and excellence in all fields.

## **RESEARCH METHODS**

### **Study Procedures**

#### *Study approach*

The researchers used the descriptive survey approach as they prepared a questionnaire to collect data with an eye to identifying the extent to which science teachers develop creative thinking.

#### *Study population*

The study population included all the teachers who taught Grade 4 through Grade 8 students in public schools of Ministry of Education in Hashemite Kingdom of Jordan and Ministry of Education in Sultanate of Oman in the school year 2020 – 2021.

*Study sample*

The study sample consisted of 240 male and female teachers distributed as shown in the following table.

**Table 1.** Distribution of the Sample as Per the Variables (Country, Gender, Experience, Academic Qualification)

<b>Study variable</b>	<b>Levels/groups</b>	<b>Number</b>
Country	Jordan	120
	Oman	120
Gender	Male	120
	Female	120
Experience	Less than 5 years	65
	5 to 10 years	86
	More than 10 years	89
Academic qualification	BA	157
	Postgraduate	83
<b>Total</b>		<b>240</b>

*Study instrument*

The researchers prepared a questionnaire which consisted, in its final form, of 31 statements with an eye to identifying the degree to which science teachers developed creative thinking. 5- point Likert scale was used with the responses (strongly agree, agree, neutral, disagree, strongly disagree).

To judge the performance of interpreting the findings, the judgement standard category on the findings was calculated through classifying the responses into five levels of an equal range in the following equation (category length = highest value – lowest value / number of alternatives). So, the category length =  $1-5/5=0.8$  to get the following means as shown in Table 2.

**Table 2.** Range of Judgment Means on Performance

<b>Range of means</b>	<b>Performance Level</b>
1.00 -1.80	Very poor
1.81 – 2.61	Poor
2.62 – 3.42	Fair
3.43 – 4.23	High
4.24 – 5.00	Very high

***Instrument validity***

The questionnaire, in its initial form, was given to a number of reviewers who specialized in science curricula and its teaching methodology to give their opinions on the suitability of the statements and the soundness of their language. Some statements were modified based on the reviewers' recommendations so the questionnaire was produced in its final form with 31 statements.

***Instrument reliability***

To check the questionnaire reliability, it was applied to a pilot sample which consisted of 30 male and female teachers from outside the study sample and population. The reliability coefficient was calculated through testing and retesting as it was applied twice with a time difference of two weeks between both applications. The values of Pearson correlation coefficients between the total teachers' scores in both applications were calculated, and the correlation coefficient was 0.88 which confirms that the instrument had a reliability significance which allows it to be used for the purposes of this study (Al-Awdah, 2010).

**Statistical processing**

The following statistical processing was used in this study:

- Means and deviation standards were used to answer the first question of the study.
- Means, standard deviations, T-test and a one-way variance analysis (ANOVA) were used to answer the second question of the study.

**RESULT AND DISCUSSION**

This section presents the findings which the study arrived at and discusses these findings in the following manner:

**Findings on the first question and their discussion**

To answer the first question of the study “What is the degree to which science teachers develop school students’ creative thinking skills in Jordan and Sultanate of Oman?”, the means, standard deviations and response scores for each group of the study were calculated. Table 3 illustrates these findings.

**Table 3.** Means, standard deviations and response scores of primary education science teachers to the questionnaire statements

Country	Response mean	Standard deviations	Response score
Jordan	4.05	0.89	High
Oman	3.55	1.02	High
<b>Total</b>	3.80	1.12	<b>High</b>

Table 3 shows that primary education science teachers practice creative thinking skills with their students to a high degree as their response mean to the questionnaire statements was 3.45 with a standard deviation of 1.12. This result could be attributed to the great improvement that has happened in the past years on school curricula and the big interest in modern teaching methods which have started to focus on thinking skills. At the level of Jordan, the reason behind the high score of teachers’ responses can be attributed to the great role played by the Ministry of Education in developing teacher’s abilities before they are appointed as teachers through giving them a number of training courses and workshops.

**Findings on the second question and their discussion**

To answer the second question of the study “Does teachers’ role in developing students’ creative thinking skills as per the variable of workplace (Jordan, Oman)?”, the means, standard deviations and response scores for each group of the study were calculated as shown in Table 4.

**Table 4.** Means and standard deviations of primary education science teachers’ responses to the questionnaire statements as per the variable of workplace (jordan, oman)

Country	Response means	Stannard deviations
Jordan	4.05	0.89
Oman	3.55	1.02
<b>Total</b>	3.80	1.12

Table 4 shows a clear difference in the means of primary education science teachers' responses in Jordan and Oman. To determine whether this difference was statistically significant or not, the researchers used the one-way variance analysis (ANOVA), and table 5 illustrates the results.

**Table 5.** Results of the one-way variance analysis (anova) of the means of primary education science teachers' responses as per the variable of workplace

Source of variance	Sum of squares	Freedom degree	Mean of squares	F- value	Statistical significance
Between groups	0.220	1	0.220	0.786	4.17
Within groups	8.40	30	0.280		
<b>Total</b>	<b>8.62</b>	<b>31</b>			

Table 5 shows no statistically significant differences at the significance level ( $\alpha=0.05$ ) in the means of the primary education science teachers in Jordan and Oman. This finding can be attributed to the fact that the developments made in the educational process in both countries are similar to a great extent especially with regard to training and qualifying teachers. This result also shows the great attention given to thinking skills in both countries.

### **Findings on the third question and their discussion**

To answer the third question "Are there any statistically significant differences at a significance level ( $\alpha=0.05$ ) in teachers' role in developing students' creative thinking skills from the perspective of teachers attributed to the variable of gender?", the means, standard deviations and response scores for each group of the study were calculated as shown in Table 6.

**Table 6.** Means and standard deviations of primary education science teachers' responses to the questionnaire statements as per the variable of gender (male, female)

Gender	Response means	Standard deviations
Male	3.35	1.10
Female	4.25	0.65
<b>Total</b>	<b>3.80</b>	<b>0.95</b>

Table 6 shows a clear difference in the means of primary education science male and female teachers' responses. To determine whether this difference was statistically significant or not, the researchers used the one-way variance analysis (ANOVA), and Table 7 illustrates the results.

**Table 7.** Results of the one-way variance analysis (anova) of the means of primary education science teachers' responses as per the variable of gender

Source of variance	Sum of squares	Freedom degree	Mean of squares	F- value	Statistical significance
Between groups	1.24	1	1.24	2.58	0.000*
Within groups	14.40	30	0.48		
<b>Total</b>	<b>15.64</b>	<b>31</b>			

Table 7 shows statistically significant differences at the significance level ( $\alpha=0.05$ ) in the means of the male and female teachers' responses in favor of the female teachers as the

means of the female teachers' responses were 4.25 which is higher than the means of the male teachers' responses which were 3.35. This result can be attributed to a number of factors and reasons such as women in Arab societies in general try to prove themselves and try by all means to show their excellence over men. Other factors have to do with the availability of teaching and learning techniques and tools in girls' schools more than in boys' schools which might allow the female students to make better use of their thinking skills.

## CONCLUSION

In the light of the findings which the study has arrived at, the study recommends the necessity of adopting teaching strategies which develop school students' creative thinking skills and support teachers who try to develop these skills. It is also recommended that the findings of this study should be generalized to other educational stages and that studies which measure the level of school students' development of creative thinking in other educational stages and courses should continue. The study also recommends the necessity of providing a lively educational environment that encourages the development of students' creativity and its material and moral elements.

Moreover, the study recommends the necessity of giving teachers, supervisors and principals training courses on educational creativity and how to develop it in school students. The researchers also recommend carrying out a qualitative study which aims to get to the root of the creativity problem, identify its restrictions and determine the strategies for developing students' creativity.

## REFERENCES

- Abu-Alwafa, J. (2006). The role of primary school principals in developing teachers' collective creativity to face the challenges of globalization: A field study. *Journal of the Future of Arab Education*, 12, 42, 53.
- Abu-Jamie, I., & Al-Taweel, A. A. (2011). The organizational culture and administrative creativity at Jordanian Ministry of Education. *Journal of Educational Sciences*. 38(1).
- Abu-Jamie, I.B.A.A., & Al-Taweel, H.A.A.S. (2008). The organizational culture and administrative creativity at Jordanian Ministry of Education. Unpublished MA dissertation. Jordanian University.
- Abu-Rayash, M.I. (2016). Components of a motivational educational environment for excellence and creativity. *Teacher Mission*, 53(1), 10 – 13.
- Al-Harathi, S. (2014). A proposal for developing administrative creativity for school principals in Ash Sharqiyah North Governorate in Sultanate of Oman. Unpublished MA dissertation. University of Nizwa.
- Al-Hatmi, H. (2016). The role of administrative creativity in solving school problems in post-primart education schools in Sultanate of Oman. Unpublished MA dissertation. University of Nizwa.
- Al-Hwidi, M.J. (2006). Method of Discovering talented and hard-working people and developing thinking and creativity. 3<sup>rd</sup> Edition, Al-Ain, Dar Al-Kitab Al-Jami.
- Al-Khawaja, A.A. (2004). *Developing School Management*. Dar Al-Thaqafa. Amman. Hashemite Kingdom of Jordan.
- Al-Lakhawi, M. (2008). The role of preparatory school principals at International Relief Agency in Gaza governorates in developing teachers' collective creativity of ways of developing it]. Unpublished MA dissertation. Islamic University: Gaza.

- Al-Sadiyah. H.B.H.B.H. (2011). The requirements of the application of administrative creativity to schools in Rustaq in south Al-Batinah region. *Association of Arab Universities Journal for Education and Psychology*. 9, 3.
- Al-Sweidan, T.M., & Al-Adlwani, M.A. (2004). *Principles of Creativity*. 3<sup>rd</sup> Edition. Kuwait: Life Engineers.
- Awdah. A. (2010). *Assessment and Evaluation in the Educational Process*. Irbid, Jordan, Dar Al-Amal.
- Aziz, J. (2013). *Creative thinking: Science and Art*. 1<sup>st</sup> Edition, Amman, Dar Al-Radwan for Publishing and Distribution.
- Dirar, A. (2006). *Education and Thinking Development: A study submitted to the regional scientific conference on talent "Sponsoring talent is an education for the future"*. King Abdulaziz & his Companions Foundation for Giftedness and Creativity. Jeddah, 26 – 30 August.
- Madhawi, A.A.A. (2016). Performance proficiencies required for nursery school female teachers to develop pre-school children's creative thinking skills: an analytical proposed study]. Arab Center for Education and Development. *Journal of Arab Education Future*, 32, 101.
- Mohammad, A.A.R. (2015). The role of Qassim University in sponsoring creativity and developing students' creative thinking. *Culture and Development*, 15(89), 117 – 204.
- Mohammad. S.A.H. (2015). The reality of developing creativity for primary stage students in Jordan from the perspective of the female principals and teachers. *Arab Journal for Developing Excellence*. 6(11), 60 -91.
- Najm, Najm. (2003). *Creativity management: Concepts, Characteristics and Modern Experiences*. Amman, Dar Wail for Publishing and Distribution.
- Sar, N.A.M. (2017). Challenges of creativity at Arab schools and how to face them: An analytical study. *International Specialist Educational Journal*. 6(1), 326 – 348.
- Shaqqour, M.H. (2002). *School Management in the Globalization Age*. 3<sup>rd</sup> Edition. Dar Al-Maysarah. Amman. Hashemite Kingdom of Jordan.
- Tawfiq, M.A. (2013). Creative education as an educational necessity for entering the age of excellence and creativity. *Journal of Educational World*. Arab Institution of Scientific investments and development of human resources. 41 Jan.
- Wijdan, A., & Abu-Asad, K. (2018). The new teacher from the perspective of students and teachers]. *Jamia: Studies in Educational and Social Sciences*, 21(2), 51 – 78.
- Zaitoun, H. (2012). *Developing thinking skills: Exploratory insight into self-development*. Riyadh, Al-Dar Al-Sawlatiyah for publishing and distribution.