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Creative skills acquired by university students through curricula

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Abstract

This study aimed to identify the creative skills acquired by university students through the curricula. The present study is based on the analytical descriptive approach in order to identify the creative skills acquired by the students of Al Ain University for Science and Technology through the curriculum. The results showed that the students' assessment of the role of the curriculum in the development of creative skills among university students is average. In conclusion, the results indicated that there are no statistically significant differences in all fields of creative skills due to the variables of gender, academic year and university specialization.

Keywords: Creative, skills, exploration, problem, solving.

Competencias creativas adquiridas por estudiantes universitarios a través de currículos

Resumen

Este estudio tuvo como objetivo identificar las habilidades creativas adquiridas por los estudiantes universitarios a través de los planes de estudio. El presente estudio se basa en el enfoque analítico descriptivo para identificar las habilidades creativas adquiridas por los estudiantes de la Universidad Al Ain de Ciencia y Tecnología a través del plan de estudios. Los resultados mostraron que la evaluación de los

estudiantes sobre el papel del currículo en el desarrollo de habilidades creativas entre los estudiantes universitarios es promedio. En conclusión, los resultados indicaron que no hay diferencias estadísticamente significativas en todos los campos de las habilidades creativas debido a las variables de género, año académico y especialización universitaria.

Palabras clave: creativo, habilidades, exploración, problema, resolución.

1. INTRODUCTION

Societies face many changes, most notably the knowledge explosion, technological progress and openness to the world due to the speed of communication, which has shown the urgent need to develop the capabilities of individuals to solve problems in creative ways (Assaf, 2013). Teaching and speaking about creativity is really interesting, despite the different influences and interpretations of creativity from the old to the modern. Creativity has always been a thorny subject, surrounded by many ambiguities and mysteries, and has always been associated with religious factors or magic rituals, and metaphysical factors and influences. The process of innovation contrary to what is said is a key wing for the progress of civilization, especially as it contributes to solving the problems facing humans in their current life and which stand in the way of human's foot to keep pace with the human civilization (Alwan, 2005).

Khair (2013), states that creativity, including creative thinking, is a complex and multi-step process, in which many factors are

intertwined, influenced and affected by it, and its role in developing creative skills that can be applied on the ground and make positive changes. The development of creative skills and innovative processes is one of the most important goals for countries that seek to develop their societies. If societies do not seek to develop creativity and thinking skills among their citizens, then these societies must fall apart and be followed by backwardness, defeat, and harm. Youth is the cornerstone for any society seeking development. Further, youth represents the largest samples of university students. Therefore, there is significant importance in focusing on universities and paying more attention to the outputs of the students in these universities. The researcher noted that most influence for university students is the curriculum.

If the curriculum neglects creativity, creative thinking and the promotion of creativity, then the quality of education and its outputs will be reduced and weaken the ability of students to solve the problems they face during their academic life and work after that. Therefore, this study focuses on the importance of the curriculum in developing the creative skills for university students, as well as the role of the professor in developing these skills.

This study aims to achieve the following objectives:

1. To identify the creative skills to be acquired by university students through the curriculum.

2. To identify the role of the curriculum in developing the creative skills of university students (solving problems through creative methods, research, discovery and investigation, and generating creative ideas).

3. To verify the existence of statistically significant differences in the creative skills offered by the curriculum due to the variables (gender, university specialization, level of education, and cumulative average).

2. LITERATURE REVIEW

The problem of innovation and creativity is one of the problems of scientific research in different countries. Thus, this led to exciting discoveries related to the identification of creators, the development of creative thinking and the emphasis on the economic value of new ideas (Sror, 2010). Creativity in Arabic is defined as the origin of the creative act that is, the invention on an unprecedented basis. Jarwan (2008) defines creativity as a combination of abilities, preparations and personal characteristics that, if found in an appropriate environment and suitable mental processes leading to authentic and useful productions. Further, Jarwan (2008) defines it as a complex and purposeful mental activity, driven by a strong desire to seek solutions or to arrive at original products that were not previously known. Khair (2013) points out that creativity is centered on producing something

new, which is not previously known in light of the previous person's experience.

It involves working independently with the ability to imagine and invent new things of value by individuals and groups by synthesizing, modifying or changing ideas. It is a multi-faceted mental process, in which ideas are generated and modified from previous knowledge and placed in new structures and these structures are characterized by fluency, flexibility, and originality (Jarwan, 2008). Debono (2001) emphasizes that the exploitation of experience in order to reach a purpose, and this purpose may be understanding, decision-making, planning, and problem-solving, the judgment of things, doing something, and investing information. Creative skills, the curriculum enhances the skill of information investment in curriculum skill analysis, synthesis and conclusion.

The teaching of creative thinking is one of the important areas in the formation of the student's personality, as educational institutions seek to prepare the students to become more effective in their community and more able to meet the requirements of different stages of life and keep up with the development of knowledge. Thus, this contributes to the formation of an adaptive, caring and confident personality (Qatami, 2003). The curriculum has a number of factors of efficiency and strengths in terms of its effectiveness. The curriculum has practical applications in the student's life so that it can be used to solve problems (Baham, 2011).

The curriculum also includes appropriate objectives and good content that take into consideration the students' needs in the form of facts, concepts, attitudes, knowledge, and skills. Maaytah & Albawlayz (2004) emphasize that the curriculum must be organized in a way that aims at deepening the knowledge of the subject, i.e. to increase the knowledge of the material that is intrinsically related to the curriculum. Telbeh (2007) argues that the curriculum must be designed in a way that does both sides of the brain: the left which is the intellectual production of approximation in analytical and logical thinking processes, the right side which is the thinking of the transcendental and the spatial, conceptual and intuitive thinking and use them both to solve innovative problems, which leads to the processing of information in a holistic, language and complexity at the same time.

Khair (2013) points out that the university professor is capable of creating a university atmosphere that motivates the students and is able to devise real strategies to avoid or solve problems. The Professor seeks to develop his skills in managing the classroom and using it in its physical, teaching and administrative dimensions, which is reflected positively on student achievement, creation, and creativity (Kosko & Singh, 2019).

3. METHOD AND PROCEDURES

The present study is based on the analytical descriptive approach in order to identify the creative skills acquired by the

students of Al Ain University for Science and Technology through the curriculum. To answer the study questions, the following statistical treatments were used through the Statistical Package Program (SPSS), where the frequency and percentages of the personal variables of the study sample were used, the means and the standard deviations for all the dimensions and the general mean. In the fields of study according to personal variables, and the application of ANOVA to detect the differences of the scale as a whole according to the gender variables, the academic year, the university specialization, the cumulative average, and the application of the equation Cronbach Alpha to extract the consistency of internal consistency.

4. RESULTS AND DISCUSSION

This section presents the results of the study aimed at identifying the creative skills acquired by the students of Al Ain University for Science and Technology through the curriculum. The results were presented based on the study questions.

Question 1: What creative skills should students have through university curricula?

In order to answer this question, the creative skills that students must have through the university curricula were limited, after referring to theoretical literature and studies related to creative skills were divided into four areas as follows:

Table 1: Creative skills students must have through university curricula

N	The first area: research, exploration and investigation	N	Second area: Use the information effectively
1	Questions for conclusion	9	Skill analysis, synthesis and conclusion
2	Issues requiring research and conclusion	10	Mental audit of information
3	Search and exploration skill	11	Quick topic categorization
4	The skill of scientific research	12	Link new information to old
5	The skill of innovative thinking	13	Understand the information and not save it
6	The skill of mental perception of things	14	A source to understand the idea
7	Innovative ways to gather information	15	Strategies to enhance data utilization
8	Provide students with research and exploration methods	16	The curriculum promotes the use of information in more than one place
N	The third area: generating ideas and systematic thinking	N	The fourth area: Creative problem solving
17	Generate new ideas based on past experiences	25	The ability of students to propose new solutions to problems
18	The diversity of ideas without stalemate on one idea	26	Identify and use alternatives to problems
19	Quick thinking about alternatives	27	Take steps to solve a problem
20	Generate as many new ideas as possible	28	Innovative and inspired solutions from students
21	The idea of merging two or more elements gets a new idea	29	Several solutions to a problem and ask for a trade-off between them
22	Think about it in more ways than one	30	Different methods to solve the problem
23	Students to imagine ideas	31	Activities with different levels of problem solving
24	Students' intellectual dialogue	32	Students apply solutions and test their validity

Table (1) shows that 32 creative skills have been adopted which students must possess through the curriculum divided into four areas, with eight creative skills for each of the previous fields. This may be due to the need for students in this age to have a range of creative skills so that students can use these skills in the future to be focused on and developed in everything that can pass the learner from the interaction and learning experiences in education. The most important of these skills are adaptive problem-solving skills, collaborative communication skills, digital fluency skills, and other skills such as exploratory exploration, creative problem solving, multiple qualification reading, creative communication, multi-resource learning, and critical thinking (Razavi et al, 2015).

These creative skills also help to find innovative solutions, provide many alternatives to solve problems and increase the level of achievement and academic achievement. This finding is in line with the outcome of Miller (2018) study, which showed that creative courses are an important positive indicator of confidence in many different skills and abilities that are important to adapt to traditional and non-traditional settings, including creativity, thinking, critical thinking, and entrepreneurial skills as well as communication capabilities (Khosravani Farahani & Mahmodi Lafva, 2016).

4.1. Results related to the second question

What is the role of the curriculum in developing the creative skills of university students? To answer this question, the means and standard deviations were calculated for each field and the scale as shown in the next table.

Table 2: The mean and standard deviations for each field and the scale as a whole, (n = 250)

Field	Mean	SD	Rank	Degree
Search, exploration and investigation	3.27	0.69	2	Average
Invest in information effectively	3.22	0.74	3	Average
Generate ideas and systematic thinking	3.22	0.70	3	Average
Creative solutions to problems	3.33	0.77	1	Average
General average	3.26	0.73		Average

Table (2) shows that the means for fields as a whole are average, the means ranged between 3.33-3.22. The most prominent of these were the creative solutions for problems, then the field of research, exploration, and investigation with an average of 3.27, and finally using information effectively. This may be due to the desire of the university to distance itself from the traditional tendency to introduce the curriculum and the delivery, teaching and receiving, which results in the tendency of students to receive the lesson in a boring way leading to the absence of the creative and critical thinking, which helps in the development and analysis and look at the latest developments and inferiority. This result differed with the result of the study, which indicated that the reality of employing the use of teaching skills in the teaching of geography was low at the level of critical thinking skills

and creative thinking. The means and standard deviations of all areas of creative skills are presented below (Peres et al, 2018).

4.2. Results related to the third question

Are there significant differences at the level of significance ($\alpha = 0.05$) between the creative skills offered by the curriculum due to the variables: (gender, university specialization, level of education, cumulative rate)? In order to answer this question, the means and standard deviations of all areas of creative skills were calculated according to gender variables, university specialization, grade level, and cumulative average.

Table 3: Results of variance analysis (MANOVA) for each pattern depending on sex study, academic year, university specialization, GPA (n = 250)

Variable	Field	Sum of squares	DF	Average squares	F value	significance
Gender	Search, exploration and investigation	0.176	1	0.176	0.368	0.545
	Invest in information effectively	0.062	1	0.062	0.115	0.735
	Generate ideas and systematic thinking	0.898	1	0.898	1.812	0.180
	Creative solutions to problems	0.491	1	0.491	0.846	0.359
Academic year	Total	0.467	3	0.156	0.324	0.808
	Search,	0.959	3	0.320	0.598	0.617

	exploration and investigation					
	Invest in information effectively	2.254	3	0.751	1.516	0.211
	Generate ideas and systematic thinking	2.538	3	0.846	1.458	0.227
Academic major	Creative solutions to problems	0.652	3	0.217	0.453	0.715
	Total	1.470	3	0.490	0.916	0.434
	Search, exploration and investigation	1.577	3	0.526	1.060	0.367
	Invest in information effectively	1.085	3	0.362	0.623	0.600
GBA	Generate ideas and systematic thinking	3.915	2	1.958	4.079	0.018
	Creative solutions to problems	3.689	2	1.845	3.448	0.033
	Total	0.139	2	0.069	0.140	0.869
	Search, exploration and investigation	6.238	2	3.119	5.378	0.005

Table (3) shows that there are statistically significant differences in all areas of creative skills at the level of significance (0.05) according to the variable of the cumulative average, where the value of (F) for the field of research, exploration and investigation (4.079) and statistical significance (0.018), and the value of (F) (0.449), the value of (F) for the field of creative solutions to problems (5.378) and the

statistical significance (0.005), and the detection of differences sites The Scheffe test as shown in table 13 below. Furthermore, there are no statistically significant differences in all areas of creative skills at the level of significance (0.05) according to the gender variable, where the value of (F) for the field of research, exploration and investigation (0.368) and statistical significance (0.545), and the value of (F) (0.115) and statistical significance (0.735), and the value of (F) for the field of generation of ideas and systematic thinking (1.812) and statistical significance (0.180), and the value of (F) for the field of innovative solutions to problems (0.846) and statistical significance (0.359).

Table 4: Results of ANOVA to detect differences on the total score of the creative skills scale according to gender variables, academic year, university specialization, GPA (n = 250)

Source of variance	Sum of squares	DF	Average square	F	Significance
Gender	0.207	1	0.207	0.570	0.451
Academic year	1.257	3	0.419	1.154	0.328
Academic major	0.798	3	0.266	0.733	0.533
GBA	2.846	2	1.423	3.920	0.021
Error	87.121	240	0.363		
Total	92.22	249			

Table (4) shows that there are statistically significant different at the level of significance (0.05) according to the variable of the cumulative rate, where the value of (F) (3.920) and statistical significance (0.021), and to detect the difference sites was applied Scheffe test. Further, there are no statistical differences at the level of

significance (0.05) according to the gender variable, where the value of (F) (0.570) and statistical significance (0.451), and there are no significant differences at the level of significance (0.05) according to the variable school year, The value of (F) (1.154) and statistical significance (0.328), and there were no significant differences at the level of significance (0.05) according to the variable university specialization, where the value of F () (0.733) and statistical significance (0.533).

5. CONCLUSIONS

1. The students' assessment of the role of the curriculum in developing the creative skills of university students is average.
2. There are statistically significant differences ($\alpha = 0.05$) between the creative skills offered by the curriculum due to the cumulative average variable in the fields of research, exploration and examination, effective information investment, creative solutions to problems and creative skills as a whole in favour of category (71-85).
3. There are no statistically significant differences in all areas of creative skills depending on gender variables, academic year, and university specialization.

Based on the findings of the study, there are some recommendations as follows:

1. Promote the curriculum with innovative thinking skills and scientific research skills.
2. The need to develop the curriculum in order to strengthen and have more than one source to understand the idea, and the diversity of ideas without stalemate on one idea.
3. Developing the curriculum based on the skills of analysis, synthesis, reasoning, and creative skills.
4. Conduct more studies to examine the role of the curriculum in the development of creative skills.

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