



GENDER OF MANAGERS AT THE MINISTRY OF EDUCATION AND ITS RELATION TO THEIR CREATIVE THINKING

REHAM ALHANAKTA



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ABSTRACT

The main goal of this article is to examine, the level of mastery of creative thinking skills from a gender perspective in the Ministry of Education in Jordan. I was curious to investigate the relationship between creativity and gender, and it was important to conduct my research to highlight the importance of creative thinking in performance. My research answered its main question and sub questions, highlighting the importance of the job title in mastering creative thinking skills, therefore; As an employee in the Ministry of Education and based on my previous experience, opportunities for women to reach leadership position in the Ministry departments are limited and inequitable.

My research focuses on the extent of the significantly statistical differences between the levels of the mastery of managers, in the directorates in the Ministry of Education and its field directorates, for creative thinking skills of fluency, flexibility, originality, elaboration and sensitivity to problems.

I have used the analytical descriptive method, based on the collection of the responses of male and female managers, working in the Ministry of Education and its field directorates, to the questionnaire tool, which has high signs of validity and reliability. Then, answers were characterized by Indicating the rates of their concentration and dispersion under some descriptive statistics coefficient were represented in the raw frequency, percentages, ranges, mode, arithmetic averages and their standard deviations, and were analyzed using some statistical significance tests.

KEY WORDS: Ministry of Education (MOE); Gender; creative thinking; general manager; manager director.

Research limits

Place limits, which is Jordan, time limits, which is 2019, human limits, which are male and female managers at the Ministry of Education center and the directorates. The theoretical limits are the gender and the creative thinking and their field evidences, and the methodological limits is the acceptable level of the significance of validity and reliability, and the procedural tool (the questionnaire).

Introduction

The Earth is finite and no growth can last forever. The boundaries of expansion are given by the continuous stream of energy and substance needed for the living conditions of the population. (Magda S. et al., 2009) Creative activities of business organizations are focused on the providers and recipients of services that are able to generate new or developed ideas for their products, services, processes, systems or community interactions. Innovative activities of business organizations are focused on their staff, who are qualified for the practical translation of creative ideas into social products, services, processes, systems and transactions. (Development, 2019) Considering the



frequently changing business environment, staying competitive on the current markets takes more efforts from companies in the 21st century.(Fogarassy et al., 2017)

Women in the Jordanian public sector amount to (45%) of the total workforce, the majority of them work in the education sector and the health sector with a percentage of (56%) as these sectors are more accepted by the community than other sectors.This is because these sectors are more aligned with the women's social role expected by the community, which is raising and looking after kids, and lack of mixing with men.In addition, the employees, both sexes and particularly women working in the public sector, have some privileges such as psychological security, as they believe that their institutions will not end their services before reaching the approved age for retirement. They can also get loans from bank easily when they have their salaries transferred to the banks, and they get professional allowances through their associations.

Women in the public sector occupy about one third of the leadership positions, which is (38%), and one quarter of the supervisory positions, which reaches (24%). However, their share of the Distinguished Employee Award and the Ideal Employee Award is not commensurate with the proportion of public sector employees. This calls for examining the level of female's mastery of creative thinking skills, and comparing those levels with their counterparts for males.(Bureau, 2019) Availability of creative thinking for employee working in leadership position in the Ministry of Education, mean more opportunities for innovation and development to improve the quality of education services.(transparency., 2013)

LITERATURE REVIEW

Many studies were conducted on the relationship between the individual's gender and the level of creative thinking such as the study of the Higher Council for Population (2018), which identified the future trends of young people who want to join the labor market towards entrepreneurship. The random study sample included 1336 students who are expected to graduate from the Jordanian universities, community colleges and training institutes. The findings of the study showed that (39%), (35.9%) of which are males and (41%) are females, of the respondents understand the true concept of entrepreneurship as pioneers building their future job based on his / her creative and innovative ideas. In addition, the results also show those respondents' attitudes towards their self-confidence influenced by their gender in favor of males, while their initiative not affected by their gender. The respondent's motivation for achievement influenced by their gender in favor of females, while their attitudes towards independence, responsibility and ability to manage risks are not affected by their gender. The results also showed that the attitudes of respondents towards creative qualities influenced by their gender in favor of males.(population, 2018)

(Swedat & Shaikh, 2017) study on the "Effect of Creative Thinking on the Effectiveness of the Administrative Decision-Making Process" was conducted on a sample of 270 workers and senior employees of 24 insurance companies. The findings of the study showed the following:

- There is a statistically significant level of ($\alpha \geq 0.5.0$) for the availability of creative thinking in its five dimensions in the insurance companies operating in Jordan.
- There is a high statistical significant level of ($\alpha \geq 05.0$) for the effectiveness of the decision making process in the insurance companies in Jordan.
- The mastery of creative thinking skills by senior employees in insurance companies is not affected for by gender, age, educational qualifications, years of experiences, job title on the one hand and the age of their companies and the number of employees on the other hand.(Sweidat & Alshaikh, 2017)

(Al-Ma'aita, 2014) Study on the "The Level of Managerial Creativity at Male and Female Principals of Secondary Schools in the Directorate of Education in Karak Governorate from their Point of View". The study sample included 120 male principals and 100 female principals. The findings of the study showed the following:



- There are high statistical significant differences in the areas of problem solving and communication and the promotion of creativity, attributed to the educational qualification in favor of PhD holders.
- There are high statistical significant differences in the area of taking risks, attributed to the place of residence of respondents in favor of the residents of the middle region.(Al-Ma'aita, 2014)

(Al-Ja'afra, 2013) Study addressed the "Methods of Managing the Organizational Conflict and its Relationship to Creativity, at Male and Female Principals of Secondary Schools in the Directorate of Education in Karak Governorate from their Point of View". The study sample included 271 male and female principals and the results showed that there are no statistical significant differences in the level of principal's creativity attributed to their gender or scientific qualifications. While there are statistical significant differences in the level of principal's creativity, attributed to their years of experience in favor of principals with less than five years of experience.(Al-Ja'afra, 2013)

(Ababneh & ALshoqran, 2013) study on the "Degree of Practicing Administrative Creativity at Educational Leaders in the Directorates of Education in Irbid Governorate". The study sample included 223 educational leaders and the results showed that the degree of practicing administrative creativity at educational leaders in Irbid Governorate is moderate and that the rates of practicing creativity at educational leaders is not affected by their expertise, directorates or job titles.(Ababneh & ALshoqran, 2013)

(AlSoudi, 2016) Study on the "Degree of Innovation Management and its Relationship with the School Principals in the Northern Governorates of the West Bank from the Male and Female Teachers' Point of Views". The study sample included 322 male and female teachers. The study findings were as follows:

- There is a high degree of creative management at school principals from the teachers' point of view in the areas of originality in the first place, followed by the fluency in the second rank, and sensitivity to problems third, and attention retain last.
- The gender, age and number of years of experience of the teachers do not affect the teachers' estimation of the level of their principals' practice of creativity and administrative performance.(AlSoudi, 2016)

The first phase of the cognitive approach to creativity started with Guilford (1991), who stated that especially different thinking is associated with the factors of fluency, flexibility, originality and elaboration. In 1977, Guilford defined creativity as creative problem solving.

(Banjob, 2015) investigated the construct validity of particular variables influencing the creativity of undergraduate students at Nakhon Ratchasima Rajabhat University, 760 students participated in this study, and were tested on items relevant to their creativity. The results showed that executive administration, teaching, instructional attitudes, motivation, and personality variables influenced the creativity of the scholars. Creativity consisted of originality, fluency, flexibility, and elaboration.(Banjob , et al., 2015)

The study of(Bart, 2015) investigated the gender differences in creative thinking subtests between males and females among 8th and 11th grade students. A suburban independent public school district in Minnesota provided student responses to the Torrance Creative Thinking Test (TTCT) The sample included 996 8th and 748 11th grades students. Results of the study revealed that there were statistically significant differences on the majority of the subtests between males and females in favor of the females between both the 8th and 11th grade students. However, there were no statistically significant differences in the fluency subtest between males and females among the 8th grade students. The results also revealed that there were no statistically significant differences in the fluency and originality subtests between males and females among the 11th grade students. Educational implications and suggestions for future work were presented.(Bart, et al., 2015)



The findings of (Abraham 2013) study suggest that though men and women are not distinguished in terms of creative or contrary thinking performance as assessed by behavioral measures, the differences in the recruited brain areas when engaged in such tasks as a function of gender are indicative of strategy differences when faced with situations that call for creative or generative responses. These findings identify novel avenues requesting further exploration in the field of gender differences in the higher-order cognition where the crucial question is not whether the ostensible differences between the genders are focused in gross or manifest intellectual abilities, but instead in the employed strategies, functional task approach or cognitive style adopted by each gender under specific conditions. (Abraham, et al., 2013)

(Chua, 2014) study on the impacts of gender and thinking style on the ability of students' creative thinking/ 5th World Conference on Educational Sciences - WCES 2013: This study aims at the following: (1) exploring the relations between gender and brain thinking style with creative thinking abilities of a group of lower sixth grade students (n=216). (2) Identifying the interacting effect of personal factors on creative thinking ability. The brain thinking style of the students was measured using the Styles of Learning and Thinking test while measuring the creative thinking ability using the Torrance Test of Creative Thinking.

Controlling the three moderator's ethnicity, academic major and critical thinking ability, the test indicated that gender was significantly correlated with creative thinking ability, while right brain thinking and learning style was positively and significantly correlated, with all of the five components of creative thinking ability, i.e. originality, fluency, elaboration, abstractness of title and resistance to premature closure. The results revealed that gender and thinking style were significant factors of creative thinking ability. However, there was no significant interaction effect of the two variables on overall creative thinking ability. (Chua, et al., 2014)

MATERIAL AND METHODS, CONDUCTED RESEARCH, ANALYSIS

There has been uncertainty about the relationship between manager's gender and the level of mastering creative thinking skills. Therefore, formulates its key hypothesis and sub- hypotheses following the nihilistic method, as shown below:

- H1: There are no statistically significant differences between the mastery levels of the managers, working in the Ministry of Education and its field directorates for the creative thinking skills of fluency, flexibility, originality, elaboration and sensitivity to problems attributed to their gender. (The main hypothesis).
- H2: There are no statistically significant differences between the mastery levels of the managers, working in the Ministry of Education and its field directorates, for the skill of fluency attributed to their gender
- H3: There are no statistically significant differences between the mastery levels of the managers, working in the Ministry of Education and its field directorates, for the skill of flexibility attributed to their gender.
- H4: There are no statistically significant differences between the mastery levels of the managers, working in the Ministry of Education and its field directorates, for the creative thinking skill of originality attributed to their gender.
- H5: There are no statistically significant differences between the mastery levels of the managers, working in the Ministry of Education and its field directorates, for the creative thinking skill of elaboration attributed to their gender.
- H6: There are no statistically significant differences between the mastery levels of the managers, working in the Ministry of Education and its field directorates, for the creative thinking skill of sensitivity to problems attributed to their gender.



Considering that, the individual's gender is an independent variable, and that mastering creative thinking skills of as a dependent variable. This means that the individual's gender, which is the independent variable, affects the level of his / her mastering creative thinking, which is the dependent variable. The research derived its view of the relationship between the two variables of the thesis from its theoretical framework.

Defining the levels of the dependent variable, in a procedural manner, as follows:

Fluency: This is the ability of the manager to generate as many ideas as possible in order to improve the performance of his organization and to provide many alternatives of effective and efficient solutions to the problems facing his institution.

Flexibility: This means the ability of the manager to generate as many ideas as possible that differ from those expected or common in his organization.

Originality: This is the ability of the manager to generate new and strange ideas in order to improve the performance of his organization and to meet the challenges or solve the problems.

Elaboration: There is the ability of the manager to add new and varied details, to an idea or solve a problem that will help to improve, develop and implement the idea.

Sensitivity to problems: The manager's ability to predict problems before they occur and to find possible solutions.

Measuring the variables in light of their levels, which has led to determining the means of measuring the independent variable, which is gender, according to their nominal levels, male and female. This has also led to measuring the dependent variable according to the five criteria (fluency, flexibility, originality, elaboration and sensitivity to problems), each of which has a set of items that have no real zero.

Sample and data collection procedure

The procedural tool, which has led to reviewing the previous studies that needed to use the postal questionnaire tool. Therefore, the research designed its tools in a different way from those known among the researchers concerned with measuring creative thinking skills by including a large number of verification sources of the actual level of creativity of the researcher and their use of the behavior approach (the triggers of responses). In the procedural measurements process instead of the approach view or direction (strongly agree, agree, neutral, disagrees, strongly disagree), the questionnaire included two aspects, the first aspect is on the fifteen characteristics of the respondent reflected in questions from (1-15) of the questionnaire. The second aspect is behavioral responses of the respondents in terms of mastering creative thinking skills, each of which has a scale of (always, Often, sometimes, rarely, never). These responses have a relative weight between 5 and 1 (the higher the degree of the respondent's response, the greater the level of mastery of creative thinking skills) and are clarified by items numbered 16- 43 of the questionnaire.

Identifying the source of the analysis unit, reached, by showing the characteristics of its research community that consists of the employees of the leadership and supervisory positions in the Ministry of Education and its field directorates. The total number of the employees was (174) males and females according to the data in Table 1 (79.88%) of which are males and (20.12%) are female.

The research used the method of the intended sample for the employees in the same positions in the directorates of field education in the governorates. As a result, the size of the study sample increased to reach (104) managers, constituting (59.77%) of their total number, (57.55%) of which are males and (68.58%) are females. In other words, the sample represents about two-thirds of the size of its original community.



Table 1: The Number of Employees in Leadership and Supervisory Positions at the Ministry of Education and Its Field Directorates in 2019

Job Title	Place of Work	Number		Total
		Males	Females	
Managing Directors	Ministry's Centre	12	7	19
Consultant with a Directors' level	Ministry's Centre	1	0	1
Director	Ministry's Centre	26	5	31
	North region	9	2	11
	Middle region	14	4	18
	South region	9	2	11
Administrative and Financial Affairs Director	North region	13	0	13
	Middle region	16	1	17
	South region	8	3	11
Educational and Technical Director	North region	11	2	13
	Middle region	12	6	18
	South region	8	3	11
Total		139	35	174

Source: Ministry of Education

The five-scale of Likert was used to measure the level of the study sample responses of the study tool items as follows: Always: (5) degrees, often: (4) degrees, sometimes: (3) degrees, rarely: (2) degrees, never: (1) degree. The ratings are divided into three levels (high, medium, low) based on the following correction criterion: category length = (the highest value of the scale - the minimum value of the scale) / number of options (the category length = $5 - 1 / 3 = 1.33$). Thus, the level of response of respondents measured as follows:

Low level: less than or equal to (2.33). Average level: greater than or equal to (2.34) to less than or equal to (3.67). High level: greater than or equal to (3.68) to (5). Entering the data electronically using "Excel" software.

Calculating the levels of mastering creative thinking skills by dividing them into three standard categories (high, medium, low) using the following equation: the difference between the highest score (5) and the lowest score (1) and then dividing this difference which is 4 by (3) (Skills of creative thinking). According to the results of this calculation, the length of the single level was 1.33, and accordingly the distribution of the levels according to the average is as follows:

- $1 + 1.33 = 2.33$, which means that the actual score of the respondent, which is equal to or less than this value, reflects a low level of proficiency in creative thinking skills.
- $2.33 + 1.33 = 3.66$, which means that the actual score of the respondents, ranging from 3.34 to 3.66, indicates that they have an average level of creative thinking skills.
- $3.67 + 1.33 = 5$, which means that the actual score of the respondents, ranging from 3.67 to 5, reflects a high level of proficiency in creative thinking skills.

Statistical processing of the data using SPSS system, which some of the centralization and dispersion coefficients were selected namely; frequencies, ratios, averages and standard deviations. In order to characterize the respondents' characteristics and responses, some statistical significance tests in the analysis of variance analysis (F) were conducted to identify the impact of respondents' gender and other characteristics on their level of mastering creative thinking skills at a confidence level of data equal to or greater than 95%. This stage resulted in the following:

Calculating the validity of the thesis instrument by showing the relationship of the items of each dimension with the sum of that dimension, according to the correlation coefficient referred to in Table 2, showing that there is a statistically significant correlation at the level of 0.01 between the items of each dimension and the sum of that dimension. This means that the thesis tool has high reliability.

Table 2: Correlation coefficients between the dimensions of the thesis tool and the total degree of the tool

Dimension	Correlation coefficient
Fluency	**0.61
Flexibility	**0.68
Originality	**0.60
Elaboration	**0.58
Sensitivity to problems	**0.63

** Statistically significant at the level of significance 0.01.

Source: SPSS

Calculate the stability of the research instrument as a whole and its dimensions according to the Cronbach Alpha coefficient. The stability coefficients are as shown in Table 3. The research tool has a high degree of stability. Using the alpha Cronbach coefficient, the value of the total stability coefficient of the tool was (0.88) and the values of this coefficient ranged between (0.70 - 0.81).

Based on the structural reliability and validity tests of the thesis tool, all the items of the tool were adopted. The scale consists of 28 items divided into five key dimensions.

Table 3: Stability coefficient (Cronbach alpha) for the thesis dimensions and the tool as a whole.

Dimension	No. of items	Cronbach alpha coefficient
Fluency	6	0.76
Flexibility	7	0.81
Originality	6	0.78
Elaboration	5	0.74
Sensitivity to problems	4	0.70
The tool as a whole	28	0.88

Source: SPSS

Categorizing the characteristics of the research sample members as shown in figure 1, which are the questions from 1-15 in the questionnaire, Figure 1: Characteristics of thesis Sample Members.

Results

Characterizing the responses of the respondents regarding their level of mastering creative thinking skills, the data in Table 4 indicate that all respondents highly master creative thinking skills without any apparent differences between them. This is confirmed by the high averages of their responses and the low standard deviations of their responses.

Mastering creative thinking skills according to their dimension were as follows; the elaboration dimension came first with a rate of 4.308 out of five degrees. Followed by sensitivity to problems with a rate of 4.296, and then fluency in the third place with a rate of 4.293, then flexibility in the fourth place with a rate of 4.282, followed by originality last with a rate of 4.154



Table 4: The averages, standard deviations, level, and order of the thesis sample responses to the dimensions of the thesis.

Dimension	Item ¹	Average	Standard deviation	Item order according to the average	Level
Fluency	FLU1	4.587	0.65	1	High
	FLU2	4.529	0.62	2	High
	FLU3	4.519	0.64	3	High
	FLU4	4.423	0.63	4	High
	FLU5	4.260	0.87	5	High
	FLU6.	3.442	1.10	6	Moderate
	Average	4.293	0.46	-	High
Flexibility	FLX1	4.365	0.84	1	High
	FLX2	4.356	0.77	2	High
	FLX3	4.346	0.69	3	High
	FLX4	4.308	0.78	4	High
	FLX5	4.298	0.71	5	High
	FLX6	4.164	0.70	6	High
	FLX7	4.135	0.94	7	High
	Average	4.282	0.47	-	High
Originality	ORI1	4.490	0.62	1	High
	ORI2	4.394	0.61	2	High
	ORI3	4.173	0.77	3	High
	ORI4	4.125	0.78	4	High
	ORI5	4.000	0.78	5	High
	ORI6.	3.740	0.89	6	High
	Average	4.154	0.46	-	High
Elaboration	ELA1	4.490	0.68	1	High
	ELA2	4.423	0.66	2	High
	ELA3	4.346	0.79	3	High
	ELA4.	4.308	0.76	4	High
	ELA5	3.971	0.99	5	High
	Average	4.308	0.55	-	High
Sensitivity to problems	SEN1	4.510	0.59	1	High
	SEN2	4.433	0.59	2	High
	SEN3	4.221	0.62	3	High
	SEN4	4.019	0.99	4	High
	Average	4.296	0.51	-	High

Source: SPSS.

¹As mentioned in the questionnaire fluency code is (FLU), flexibility code is (FLX), Originality code(ORI), elaboration code is (ELA),sensitivity to problem code (SEN)

Figure 1: Characteristics of thesis Sample Members.

Gender	Age		Marital Status	Educational Level	
Male, 76.92	45. Less than 55 years, 62.5		Married, 87.5 Single, 12.5	Ph.D., 36.54	M.A., 34.62
Female, 23.08	55 years and over, 22.12	Less than 45 years, 15.38		High Diploma, 20.19	BA, 8.65
Job title	Years of experience in the leadership / supervisory positions		Performance evaluation in 2018	Being nominated for the Distinguished Employee Award managed by King Abdullah II Center for Excellence	
Director, 68.27	10 - Less than 20 years, 43.27	Less than 10 years, 35.58	Excellent, 96.15	No, 94.23	
Managing Director, 31.73	20 years and over, 21.15				
Managing Directorate / Directorate Sector		Receiving the Distinguished Employee Award if nominated.	Receiving the Ideal Employee Award if nominated.	Participating in programs, courses or workshops on creativity and innovation.	
Administrative support, 51.92	Technical, 48.08	No, 100	No, 90	Yes, 53.85	No, 46.15
			Yes, 10		
Place of living at the regional level		Being nominated for the Ideal Employee Award, administered by the Civil Service Bureau	Being a member of the King Abdullah II Award for Excellence in Government Performance and Transparency, formed by the Ministry of Education	Places where programs, courses or workshops were conducted in case of participation.	
Central Region, 81.73		No, 90.38	No, 67.31	Inside Jordan, 73.21	
Northern Region, 11.53	Southern...		Yes, 9.62	Yes, 32.69	Both inside and outside Jordan, 16.07

RESEARCH RESULTS AND RECOMMENDATION

ANOVA analysis was conducted in to answer the research questions and test the hypotheses. The results of Table 5 show that there are no statistically significant differences in the level of mastering creative thinking skills (fluency, flexibility, originality, elaboration, and sensitivity to problem) at the respondents attributed to their gender, age, marital status, years of experience and performance evaluation. In addition, table 6 there are statistically significant differences in the level of mastering all creative thinking skills attributed to their job title in favour of managing directors



Table 5: ANOVA test to the differences in the level of the tool according to their qualitative and functional characteristics.

Source of Variation	Sum of squares	Degrees of freedom	Average squares	"F" Value	Statistical Significance
Gender	0.01	1	0.01	0.06	0.80
Age	0.21	2	0.11	0.62	0.55
Marital status	0.16	1	0.16	0.94	0.34
Educational level	0.18	3	0.06	0.35	0.80
Job title	0.87	1	0.87	*5.14	0.01
Management Sector	0.00	1	0.00	0.02	0.88
Years of leadership / supervisory experience	0.25	2	0.13	0.74	0.49
Functional evaluation of performance	0.47	1	0.47	2.75	0.10
Error	14.36	83	0.17		
Total	1752.83	96			

*Statistically significant at the level of significance (0.05).

Source: SPSS analysis.

Table 6: Distribution of the averages and their standard deviations of the respondents in the level of the tool as a whole according to their job title

Variable	Category	Average	Standard deviation
Job title	Managing Director	4.488	0.38
	Director	4.164	0.42

Source: SPSS results

Based on the above, one can say that the level of mastering creative thinking skills of fluency, flexibility, originality, elaboration and sensitivity to problems by the directors of the Jordanian Ministry of Education is not affected by their characteristics of gender, age, marital status, level of education, management sector, years of experience and performance evaluation. On the other hand, the level of mastering those skills is affected by the job title in favour of the managing directors. The high level of mastering the creative thinking skills by the managing directors at the Ministry of Education may be attributed to the diversity of the work of their managing directorate and the implications of the institutional problems that require addressing them. This might be confirmed by the rank of the mastery of creative thinking skills, which were as follows: elaboration, sensitivity to problems, fluency, flexibility, originality.

Conclusions

- First: -the higher, the managerial position of the Jordanian employee, the greater his level of mastering creative thinking skills, and vice versa.
- Second: -Male and female managers in the Jordanian public sector institutions master the skills of creative thinking by the following order: elaboration, sensitivity to problems, fluency, flexibility, and originality.
- Third: -The greater the scope of the work of the managing director in the Jordanian public sector institutions, the greater his level of mastering creative thinking skills, and vice versa.
- Fourth: -The opportunity of the Jordanian female employees to innovate is less than that of the Jordanian male employee due to the difficulty of her access to the director position in the organization as the Retirement Legislation Systems distinguish against her. The Jordanian Civil Retirement Law in force allows the retirement of females after 20 years of service, and males after 25 years of service. The Jordanian Social Security Act allows females to retire after the age of 55, and males after the age of 60 years.

Recommendations

- First: -Developing the Retirement Legislation Systems based on preventing gender discrimination in terms of the acceptable years of service for retirement and the minimum age for retirement to ensure that females have access to the position of directors, which would enable them to master the careers creativity.
- Second: -Building the capacity of male and female employees in leadership and supervisory positions at Ministry of Education in the area of creativity, through participating in training events for creativity and innovation.



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CONTACT ADDRESS

REHAM ALHANAKTA

Szent István University, 2100 Gödöllő, PéterKároly u.1, Hungary

RECENZIA TEXTOV V ZBORNÍKU

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