

Innovative leadership and its influence on the creative behavior of academic leaders in Jordanian universities

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Abstract

The study identifies innovative leadership and its influence on the creative behavior of the community academic leaders in Jordanian universities. It uses the descriptive analytical approach. The nature of the community work is the following leadership positions: Vice President, Dean of Faculty, Vice Dean, and Head of Department, which numbered (1131) academic leaders, and consisted of (399) academic leaders.

*The study showed a statistically significant effect of innovative leadership in the creative behavior of academic leaders in Jordanian public universities with no such differences in the responses of the sample members in the level of innovative leadership and creative behavior attributed to gender variables, college specialization, academic rank and nature of work. Further, the responses are statistically different in the creative behavior because of the nature of the work and in favor of the assistant dean. In this work, * indicates statistical significance at the significance level ($\alpha \leq 0.05$) and ** is statistical significance at significance level ($\alpha \leq 0.01$).*

Keywords: Innovative leadership, Creative behavior, Academic leadership.

Introduction

The leadership style is the most significant and urgent issues addressed in universities in light of the various renewed transformations and rapid changes. What globalization has contributed to the revolution in information and communication, so attention began to be paid to the active role of educational leaders through their tasks at the level of the individual and society in

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education, scientific research and social responsibility. Thus their quest to develop and improve their performance at all levels.

This era, in light of dynamism and rapid change in all fields, requires leadership capable of responding quickly, vigilance and awareness of the existing environment and seeking to keep pace with modernity and openness to everything new and useful, by linking to future goals. It anticipates time and providing innovative ideas, as the level of innovation depends on leadership ability and its desire for change and its readiness to challenge (Mohsen, 2018). Innovative leaders who are able to think freely and see the future is a repository to absorb creative ideas and actions issued by subordinates. The creative leader works to collect new ideas and sees the problem and reads it alone in a different and distinct way. Traditional leadership has become impossible in our time because of its serious consequences, as it turns workers into bureaucrats and robs them of their creative abilities (Jibrini (2016).

Innovative leadership represents the future vision of successful and productive universities, as it represents the key to administrative development, which introduces a culture of innovation and attracts creators, through the quality of dynamic education and strategic planning. This allows greater flexibility to shift towards productive and creative societies, the academic leader is required to open the way for academics to participate in change and innovation through his practice of creative behaviors, by giving them the free space to interact and increase confidence and adapt to changes (Hessa and Al-Rashed (2020).

In order for universities to achieve continuous innovation, leaders must strive to create an environment conducive to renewal in addition to providing an organizational culture that encourages creativity and innovation. Innovative leadership plays an effective role in achieving a qualitative leap in universities and achieving the desired development, through the creative behavior of leaders. They must have several common qualities such as leadership knowledge, values, talents and skills to realize the danger of current problems and be able to anticipate their negative effects on the future (Şen & Eren, 2012).

Creative behavior is the distinctive behavior by the worker in the workplace from the diversity of decisions. It starts with the realizing and analyzing the situation, then collecting information, evaluating the alternatives, selecting the most suitable alternative. It adopts a specific behavior and not that the creative behavior finds new outcomes, yet it must precede the start (Karbouli, 2019).

Chang, Chen, Chuang, and Chou (2019) has pointed out that creative behavior has three dimensions in itself that help it to create: positive beliefs about innovative leadership strategies, positive beliefs about creative outcomes, and beliefs that face external negative evaluation.

This study identifies innovative leadership and its influence on the creative behavior of academic leaders in Jordanian universities. It is hoped that it will provide a set of recommendations and suggestions that promote creative behavior in universities.

Study problem and questions

Academic leaders who have a good level of innovation are only able to survive and continue. They also have the ability to interact positively with all changes and provide an organizational climate helping in developing the educational process, and in dealing with various internal and external changes.

There are many studies on innovative leadership, which dealt with this topic and its dimensions in various environments (Al-Shahrani, 2018). This has motivated the conduct of this study and the identification of the influence of innovative leadership on creative behavior, because of the role of innovation in the process of improvement and change, and its importance on creativity in administrative processes. Also, university education in Jordan requires a qualitative leap in building a knowledge society and keeping pace with modern trends in education. It is also required to pay attention to innovators and creators and invest their features and capabilities in the reform and development process to achieve social and economic development. This to increase their creative and innovative capacity. These efforts face challenges related to the development of organizational structures and educational leaders, in addition to the need to develop administrative systems, and challenges related to technological and social changes and global competitions. This requires Jordanian universities to exert more efforts and creative behaviors through innovative leaders to reach a classification that achieves a position Competitive. Therefore, the current study revealed innovative leadership and its influence on the academic leaders' creative behavior of.

1. What influence does innovative leadership have on the academic leaders' creative behavior in Jordanian universities?
2. Are there statistically significant differences at the level of significance ($0.05=\alpha$) in the academic leaders' responses in the response at the level of innovative leadership due to gender, college specialization, academic rank, and nature of work?
3. Are there statistically significant differences at the level of significance ($0.05=\alpha$) in the responses of academic leaders in Jordanian universities in the level of creative behavior because of

gender variables, college specialization, academic rank, and nature of work?

The study aims

The work seeks at:

- Revealing the influence of innovative leadership on the creative behavior of academic leaders in Jordanian universities.
- Showing the statistically significant differences at the level of significance ($0.05=\alpha$) in the responses of the sample at the level of innovative leadership because of gender, college specialization, academic rank, and nature of work.
- Revealing the statistically significant differences at the level of significance ($0.05=\alpha$) in the responses in the level of creative behavior attributed to gender variables, college specialization, academic rank, and nature of work.

The importance of the study

Theoretical significance: This work is a recent study in the field of innovative leadership and creative behavior. It enriches the Arab world and opens horizons for researchers to address this topic from various aspects in order to reach comprehensive studies. It supports theoretical literature in general, and it is possible to benefit graduate students and research centers through the methodology they will provide for scientific research.

Practical importance: This study shows the influence of innovative leadership on creative behavior. With the strength and weakness in the use of innovative leadership style to be feedback, it improves the level of education through the decisions of the Education Council to develop innovative leadership styles in Jordanian universities (private and public), and keep pace with developing and upgrading the ladder of science and arming it.

Terminology

This study includes some basic terms and their conceptual and procedural definition is as follows:

Innovative leadership: A leadership style that is characterized by possessing creative and motivating skills and ideas finds original and renewable administrative processes and methods to achieve the desired goals efficiently and effectively within a strategic vision that helps change, renewal and problem solving Al-Hajjaj (2017).

In terms of procedure, it is the response level of the sample to the items of the tool that measures innovative leadership prepared by the two researchers.

Creative behavior is the ability to create methods and ideas receiving the optimal response from employees. It motivates the investment of abilities and talents for achieving the desired organizational goals (Dawood 2020).

In terms of procedure, it is the response level of the sample to the items of the tool that measures creative behavior prepared by the researchers.

Academic Leaders are university presidents and vice-presidents, deans and vice-deans of colleges, heads of departments, and all performing in leading position (Eid, 2020).

Limitations of the study:

The limits are:

- Spatial boundaries were universities in the Hashemite Kingdom of Jordan.
- Time limits was the first semester of the academic year 2021/2022.
- Human limits are Academic leaders (university presidents and their vice-rectors, deans of colleges and their deputies, and heads of departments) in Jordanian universities were used.

Previous studies

Studies related to innovative leadership

Al-Shahrani (2018) aimed to identify the innovative leadership degree among academic leaders at the University of Bisha according to faculty members. The descriptive survey method was used on (209) faculty members. The degree of innovative leadership was moderate. Also, there were no statistically significant response differences in their assessment of the degree of practice innovative leadership because of gender, degree, experience, specialization and workplace.

Jibrini (2016) conducted a study aimed at identifying the innovative leadership practice among educational leaders and its relationship to decision-making effectiveness according to the deans of colleges and heads of academic departments in Palestinian universities. The study sampled (342) individuals, and the descriptive approach was used. There is a large degree of response of practice innovative leadership and on the three areas (management dealing with employees, work environment, innovative behavior). There were no

statistically significant differences between the averages of the responses of the study sample towards the degree of practicing innovative leadership and the effectiveness of decision-making according to deans of colleges and heads of academic departments in Palestinian universities because of the academic qualification with no statistically significant differences between the averages of the responses towards practicing innovative leadership and decision-making effectiveness according to deans of colleges and heads of academic departments in Palestinian universities due to the years of experience. The responses of the study sample towards practicing innovative leadership were statistically significant according to the deans and heads of departments in Palestinian universities are attributed to the college variable. The averages of the responses towards the degree of innovative leadership practice and decision-making effectiveness were statistically significant according to the deans of colleges and heads in Palestinian universities due to job title at the degree.

Gamze (2014) showed and analyzed the leadership model roles in the university administration in the creation of an educational environment for innovation and entrepreneurship. The qualitative analytical approach was used with interviews-like structure on (42) faculty members and (12) postgraduate studies from three universities in Istanbul. The results of the study indicated that 78% find that participatory democratic leadership is the new and important leadership model that enables innovation with leadership, and that 80% of the study sample see the private sector participation significance in the transformation of 69% agreed that experts should be consulted on a permanent and continuous basis. Also, 86% believe that modern leadership and management styles are crucial in the promotion of this change and development.

Studies related to creative behavior

Al-Masaeed and Tanash (2019) identified the reality of creative behavior among faculty members at Al al-Bayt University. A questionnaire consisting of (24) items was developed, and its truthfulness and stability were verified, and then it was distributed to (274) faculty members. The study showed that the degree of estimating the reality of creative behavior Al al-Bayt University according to the sample was average. The results showed that there were statistically significant differences in the estimates of the sample members of the reality of creative behavior among faculty members at Al al-Bayt University attributed to the academic rank and in favor of professor at the overall level of the tool and on all dimensions.

Jumaili (2017) showed the influence of the organizational environment on creative behavior in Jordanian private universities using descriptive

analytical approach on all faculty members in public and private Jordanian universities with randomly selected sample of (297) faculty members, where the researcher distributed (350) questionnaires to faculty members, from which the researcher recovered (330). After reviewing the questionnaires, (33) questionnaires are not valid for statistical analysis. The study sample was (297), and after conducting statistical analysis. The organizational environment statically impacts organizational citizenship in Jordanian universities showing a statistically organizational citizenship significant influence on the level of creative behavior in Jordanian universities from the respondents' perspectives.

Al-Muqabala (2016) identified the degree of delegation of authority and its relationship to the creative behavior of the heads of academic departments according to faculty members at Al al-Bayt University. The sample was (187) faculty members using the descriptive analytical approach. The degree of delegation of authority was medium, while the level of creative behavior came at a high level. No statistically significant differences were found because of gender and the college in professional growth and influence, with the exception of the areas of decision-making, and status, and the differences were in favor of scientific colleges for the rank variable in all areas except the field of professional growth. The teacher rank and professor were statically different in favor of the teacher with no statistically significant differences due to gender and rank in all areas except the field of innovation in favor of the teacher. Statistically significant differences are due to the influence of the college in the field of mental characteristics, innovation, and total creative behavior in favor of scientific colleges. The degree of authority and the creative are statistically significantly positive in a relationship in the behavior of the heads of academic departments at Al al-Bayt University according to faculty members.

Celik, Cakici, and Celik (2014) aimed to identify the administrative empowerment effect on creative behavior and innovation in educational institutions in Iran, and the descriptive analytical approach was used on of (52) randomly selected samples with a statistically significant positive relationship between administrative empowerment and organizational creative behavior, and the results of the study also found a statistically significant relationship attributed to the gender variable and in favor of males for the variable of specialization and for the benefit of scientific disciplines.

Commenting on previous studies

In the literature, there is a level of innovative leadership and creative behavior varies between high, medium and low as in Al-Muqabala (2016); Al-Shahrani (2018).

There is a relationship between the degree of innovative leadership practice among educational leaders and decision-making effectiveness, such as the study of Jibrini (2016). Also, the administrative empowerment affects creative behavior and innovation (Celik et al., 2014).

This study is new in its innovative leadership and its influence on creative behavior, community and appointed by academic leaders in Jordanian universities in innovative leadership and creative behavior, which were not addressed in previous studies in a comprehensive manner.

Study Methodology and Procedures:

This explains the study population, sample, study methodology, tool, methods of verifying its validity and stability, and statistical and the results.

Methodology:

The descriptive analytical approach was used.

Population:

The work included (1131) Vice President, Uncle, Vice Dean, and Head of Department according to the statistics of the Ministry of Higher Education and Scientific Research for the year 2021.

Study sample:

In this work, (399) Academic leaders were randomly selected in Jordanian public universities was selected based on the sample table (Krejcie & Morgan) as in Table (1):

Table (1) Distribution of the study according to gender, college specialization, academic rank, nature of work).

Variable	Variable categories	Iteration	Percentage
Sex	Male	182	45.6
	Female	217	54.4
	Total	399	100.0
College Specialization	Humanism	101	25.3
	Scientific	298	74.7
	Total	399	100.0
Academic Rank	professor	113	28.3

Variable	Variable categories	Iteration	Percentage
	Associate Professor	113	28.3
	Assistant Professor	173	43.4
	Total	399	100.0
Nature of work	Assistant to the President	55	13.8
	Dean of the College	109	27.3
	Assistant Dean	10	2.5
	Vice Dean	80	20.1
	Head of Department	145	36.3
	Total	399	100.0

Study Tool: To reveal the influence of innovative leadership on the creative behavior of academic leaders in Jordanian universities, a questionnaire was developed to collect information based on the literature as in Al-Masaeed and Tanash (2019) Al-Shahrani (2018). The study tool included:

The first part: this part contains the demographic information of the respondent related to gender, college specialization, academic rank, nature of work.

The second: Items measure innovative leadership and include (30) items distributed over the following areas:

1. Sensitivity to problems and their solution and was represented by paragraphs (1-7).
2. Generating new ideas items (8-15).
3. Personal initiatives items (16-22).
4. Perseverance and persistence items (23-30).

The third part: It includes items that measure creative behavior, where they consist of (30) paragraphs that have been distributed to the following areas:

1. For authenticity and was (1-7).
2. Flexibility and was (8-15 items).
3. Fluency and was (16-22 items).
4. Sensitivity to problems and the ability to analyze (23-30 items).

Validity of the scale: the following two methods were used:

Authenticity of the arbitrators: (8) arbitrators from the teaching staff in Jordanian universities reviewed the accuracy of the items and their relevance, and their suitability what they were built to measure, and the integrity of the linguistic formulation. They proposed amendments with an agreement rate of (85%).

Honesty of the internal construction: The internal structure of the scale was valid as applied to an exploratory sample and outside it on (30) academic leaders, and the correlation coefficients were calculated in Table (2).

Table (2) Results of Pearson Coefficients between items and Total Score and between Domain and Total Degree of Innovative Leadership

Paragraph number	Paragraph correlation with domain		Correlation of the paragraph with the overall degree of innovative leadership		Field correlation with overall degree of innovative leadership	
	R	A	R	A	R	A
Sensitivity to problems and their resolution					0.919**	0.000
1	0.816**	0.000	0.637**	0.000		
2	0.726**	0.000	0.852**	0.000		
3	0.660**	0.000	0.497**	0.005		
4	0.645**	0.000	0.730**	0.000		
5	0.797**	0.000	0.645**	0.000		
6	0.536**	0.002	0.629**	0.000		
7	0.631**	0.000	0.505**	0.004		
Generating new ideas					0.941**	0.000
8	0.755**	0.000	0.643**	0.000		
9	0.626**	0.000	0.702**	0.000		
10	0.759**	0.000	0.628**	0.000		
11	0.546**	0.000	0.639**	0.000		
12	0.695**	0.000	0.539**	0.000		
13	0.552**	0.000	0.674**	0.000		
14	0.800**	0.000	0.667**	0.000		
15	0.739**	0.000	0.806**	0.000		
Personal Initiatives					0.933**	0.000
16	0.740**	0.000	0.612**	0.000		
17	0.633**	0.000	0.730**	0.000		
18	0.575**	0.001	0.530**	0.003		
19	0.494**	0.005	0.537**	0.002		

20	0.437**	0.008	0.420*	0.021		
21	0.702**	0.000	0.749**	0.000		
22	0.830**	0.000	0.762**	0.000		
Perseverance and persistence					0.940**	0.000
23	0.540**	0.002	0.470**	0.009		
24	0.676**	0.000	0.688**	0.000		
25	0.764**	0.000	0.731**	0.000		
26	0.516**	0.004	0.367*	0.046		
27	0.651**	0.000	0.533**	0.002		
28	0.643**	0.000	0.624**	0.000		
29	0.728**	0.000	0.694**	0.000		
30	0.561**	0.001	0.636**	0.000		

*Statistically significant at significance level ($\alpha \leq 0.05$).

** Statistically significant at significance level ($\alpha \leq 0.01$).

In Table (2), the correlation coefficients between the items and the field was (0.437- 0.830), and between items and the total degree was (0.367-0.852). For the fields and the total degree was (0.919-0.941); all are statistically significant at the significance level ($\alpha \leq 0.05$), indicating the validity and suitability of the tool for conducting the study.

The Table (3) Pearson Coefficients between the items Domain and the total score and between the domain and the total score of creative behavior

Paragraph number	Items correlation with domain		Correlation of the items with the overall degree of creative behavior		Field correlation with overall degree of creative behavior	
	R	A	R	A	R	A
Originality					0.946**	0.000
1	0.550**	0.002	0.539**	0.002		
2	0.788**	0.000	0.706**	0.000		
3	0.735**	0.000	0.733**	0.000		
4	0.599**	0.000	0.600**	0.000		
5	0.512**	0.004	0.448*	0.013		
6	0.852**	0.000	0.809**	0.000		
7	0.749**	0.000	0.696**	0.000		
Flexibility					0.931**	0.000
8	0.565**	0.001	0.622**	0.000		
9	0.561**	0.000	0.449*	0.013		
10	0.765**	0.000	0.807**	0.000		
11	0.686**	0.000	0.585**	0.001		

12	0.748**	0.000	0.813**	0.000		
13	0.710**	0.000	0.546**	0.002		
14	0.674**	0.000	0.733**	0.000		
15	0.502**	0.005	0.379*	0.039		
Fluency					0.894**	0.000
16	0.657**	0.000	0.624**	0.000		
17	0.491**	0.006	0.360	0.05		
18	0.829**	0.000	0.821**	0.000		
19	0.691**	0.000	0.757**	0.000		
20	0.853**	0.000	0.785**	0.000		
21	0.446*	0.014	0.481**	0.007		
22	0.696**	0.000	0.538	0.002		
Sensitivity to problems and ability to analyze					0.957**	0.000
23	0.849**	0.000	0.784**	0.000		
24	0.669**	0.000	0.683**	0.000		
25	0.853**	0.000	0.811**	0.000		
26	0.864**	0.000	0.876**	0.000		
27	0.863**	0.000	0.781**	0.000		
28	0.767**	0.000	0.727**	0.000		
29	0.887**	0.000	0.802**	0.000		
30	0.847**	0.000	0.882**	0.000		

Table (3) confirms the correlation coefficients between the items and the field ranged between (0).502- 0.887), and between items and the total degree was (0.360-0.882), while between the fields and the total degree was (0.894-0.957). All are statistically significant at the significance level ($\alpha \leq 0.05$), so the tool was valid and suitable.

Stability of the study tool: The study was stable because of by the internal consistency, by the Cronbach alpha coefficient, by applying the tool (questionnaire) to an exploratory sample of (30) educational leaders, and Table (4 is the stability coefficients.

Table (4) The stability coefficients in the concept of internal consistency of the study instrument

No.	domains	Number of paragraphs	Cronbach Alpha Coefficient
1	Sensitivity to problems and their resolution	7	0.816
2	Generating new ideas	8	0.838
3	Personal Initiatives	7	0.725
4	Perseverance and persistence	8	0.789

-	Innovative Leadership	30	0.941
5	Originality	7	0.807
6	Flexibility	8	0.795
7	Fluency	7	0.783
8	Sensitivity to problems and ability to analyze	8	0.932
	Creative behavior	30	0.954
-	Questionnaire as a whole	60	0.970

Table (4) is the stability coefficients for innovative leadership (0.941) and for the areas of innovative leadership using Cronbach's alpha coefficient was (0.725-0.838), for creative behavior (0.954), and for the areas of creative behavior (0.795-0.932). The resolution as a whole reached (0.970), so the tools is stable.

Relative weight: The response was distributed to the study tool, according to the Likert five-point scale. The response was given strongly agree (5) degrees, agree (4), neutral (3), disagree (2), and strongly disagree (1), and the arithmetic means interpret the estimates of the sample members on degrees, areas and items, and table (5) shows that:

The table (5) relative weight to interpret estimates on each of the total degree and areas and each of the items

Arithmetic mean	Level
1- 2.33	Low
2.34- 3.67	Medium
3.68 -5	High

Statistical methods for this study: For data analysis, SPSS was used. Here, the Pearson coefficient and Alpha Cronbach correlation coefficient were used to show if the tool was valid and stable, the multiple regression coefficient answers the first study question, and the analysis of one-way variance (4 Way ANOVA) the second and third.

Discussion and results:

Is there a statistically significant effect at the level of significance ($\alpha \leq 0.05$) for innovative leadership in the creative behavior of academic leaders in Jordanian public universities?

The multiple regression analysis was used to answer this question showing no high correlation (multicollinearity) between the independent variables using the Variance Inflation Factor (VIF) test and the tolerance test considering the coefficient of variance inflation (VIF) of a value less than (3) and the value of the permissible variance test (Tolerance) is greater than (0.05). Calculating confirmed the

torsion coefficient (Skewness), taking into account that the data from normal distribution if the torsion and flattening coefficient is less than (1) as in Table (6):

The Table (6) Test for Variance Inflation Coefficient, Permissible Variance and Torsion Coefficient

Independent variable Dimensions	Coefficient of variance BRIGHT	Permissible variation Tolerance	Convolution Skewness
Sensitivity to problems and their resolution	1.721	0.368	0.541
Generating new ideas	1.644	0.274	0.177
Personal Initiatives	1.672	0.371	0.085
Perseverance and persistence	1.800	0.342	0.211

Referring to the data of Table (5), the values of the variance amplification coefficient (VIF) test for all dimensions of the independent variable are less than (3) and range between (1.644-1.800), and the values of the tolerance test ranged between (0).274-0.371). This means no high correlation (Multicollinearity) between the innovative leadership and the data from the normal distribution by calculating the torsion coefficient (Skewness) and ranged between (0.085-0.541), which are values close to zero.

The Table (6) Regression Variance Analysis (ANOVA Analysis) to demonstrate if the model is valid to test the hypothesis.

Source of contrast	Sum of Squares	Degrees of freedom	Mean of squares	Value (P)	Statistical significance
Regression	51.575	4	12.894	280.252**	0.000
Error	18.127	394	.046		
Total	69.702	398			

Correlation coefficient = (0.860).

Determination Coefficient (interpreted variance) = (0.740).

Corrected coefficient of determination = (0.737)

Table (6) shows a statistically significant effect of innovative leadership on the creative behavior of academic leaders. The calculated value of (P) of (280).252) at the significance level ($\alpha=0.000$) is statistically significant, and innovative leadership explains its stability. Its amount is (74.0%) of the variation in creative behavior, a high explanatory

value and reflects the model power. Table (7) is the influence of innovative leadership areas in creative behavior:

Table (7) Multiple Regression Analysis by (Enter) method showing influence of innovative leadership on the creative behavior

Dimension	Estimated regression coefficients		Standard regression coefficients	Value (v)	Statistical significance
	B	Standard error	Beta		
Hard	0.563	0.086		6.540	0.000
Sensitivity to problems and their resolution	0.213	0.038	0.238	5.615**	0.000
Generating new ideas	0.128	0.041	0.155	3.155**	0.002
Personal Initiatives	0.143	0.037	0.161	3.836**	0.000
Perseverance and persistence	0.357	0.039	0.402	9.163**	0.000

Table (7) shows a statistically significant influence of all areas of innovative leadership (sensitivity to problems and solving them, generation of new ideas, personal initiatives, perseverance and persistence) in creative behavior. Based on the calculated values (T) shown in Table (7) of (5.615, 3.155, 3.836, 9.163) respectively at the level of significance ($\alpha=0.000, 0.002, 0.000, 0.000$). It is statistically significant at the level of ($\alpha \leq 0.05$) showing what is explained by each area of creative behavior. The stepwise regression analysis has been applied as Table (8):

Table (8) stepwise regression analysis to show the entry order of into the fields of innovative leadership and the influence of each field on creative behavior

Domain	Correlation coefficient	Interpreted variation	Domain contribution amount	Value (P)	Statistical significance
Perseverance and persistence	0.806	0.650	0.650	738.407	0.000
Sensitivity to problems and their resolution	0.846	0.716	0.065	90.768	0.000
Personal Initiatives	0.856	0.733	0.018	26.400	0.000

Generating new ideas	0.860	0.740	0.007	9.952	0.000
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The results of Table (8) show that the field of perseverance and persistence explains (65%) of the creative behavior of academic leaders in Jordanian public universities. The next is sensitivity to problems and explains (6.5%) of creative behavior, then personal initiative and explains (1.8%) of creative behavior and finally came the field of idea generation and explained (0.7%) of creative behavior.

The researcher believes that innovative leadership is evident in its influence on creative behavior through the development of motivation to work and stimulate the ability to adapt and interact positively with the changes and developments directed by the university. It makes the organizational climate more appropriate for the educational process. Building a knowledge society that simulates modern trends in education requires the application the investment of experts who possess innovative capabilities is crucial in promoting creative behavior to bring about the required change. This result confirmed some studies (Al-Jumaili, 2020); Al-Masaeed and Tanash (2019); Celik et al. (2014); Gamze (2014).

The second question: Are there statistically significant differences at the level of significance ($0.05 \geq \alpha$) in the responses of academic leaders in Jordanian universities in the level of innovative leadership due to gender variables, college specialization, academic rank, and nature of work?

Bidirectional variance (4 Way ANOVA) was used to answer this question, as in tables (9) and (10):

Table (9) Arithmetic Averages and StD: The responses to the level of innovative leadership, attributed gender, college specialization, academic rank and nature of work

Variable	Variable categories	Number	Arithmetic mean	Standard deviation	Adjusted mean	Standard error
Sex	male	182	3.35	0.477	3.37	0.041
	female	217	3.31	0.387	3.33	0.041
College Specialization	humanism	101	3.33	0.473	3.36	0.049
	Scientific	298	3.32	0.415	3.34	0.035
Academic Rank	professor	113	3.38	0.435	3.38	0.047
	Associate Professor	113	3.36	0.426	3.37	0.049
	Assistant Professor	173	3.27	0.424	3.28	0.045

Variable	Variable categories	Number	Arithmetic mean	Standard deviation	Adjusted mean	Standard error
Nature of work	Assistant to the President	55	3.42	0.440	3.42	0.059
	Dean of the College	109	3.35	0.433	3.36	0.043
	Assistant Dean	10	3.31	0.411	3.29	0.059
	Vice Dean	80	3.39	0.421	3.41	0.050
	Head of Department	145	3.24	0.419	3.26	0.035

According to Table (9), differences are between the arithmetic means of the responses in the level of innovative leadership attributed to gender, college specialization, academic rank and nature of work. To ensure whether the differences are statistically significant, the multi-directional one-way variance analysis test (4 way ANOVA) has been applied as in Table (10):

Table (10) The mono variance directional variance (4 WAY ANOVA) shows the significance of the differences in the responses in innovative leadership because of college specialization, academic rank and nature of work

contrast	Sum of Squares	Degrees of freedom	Mean of squares	Value (F)	Statistical significance
Sex	0.142	1	0.142	0.786	0.376
College Specialization	0.021	1	0.021	0.117	0.733
Academic Rank	0.886	2	0.443	2.449	0.088
Nature of work	1.779	4	0.445	2.215	0.095
Error	70.529	390	0.181		
Total	4481.138	399			
Macro Corrector	73.545	398			

In Table (10), no statistically significant differences were in the responses in innovative leadership because of gender, college specialization, academic rank and nature of work. The calculated values (q) in the previous table (f=0.786, 0.117, 2.449, 2.215) at the significance level ($\alpha=0.376, 0.733, 0.088, 0.095$) show no statistically significant differences at the significance level ($\alpha \leq 0.05$).

This result can be explained based on the academic leaders in Jordanian public universities, regardless of their gender, fields of specialization, academic ranks, and the nature of their workers possess creative leadership abilities. These abilities are fairly similar, and agreement in creative leadership may be the result of the unity of the goal they seek to achieve, and this result is consistent with the results of both the studies of Al-Muqabala (2016); Al-Shahrani (2018); Jibrini (2016)

Are there statistically significant differences at the level of significance ($0.05 \geq \alpha$) in the responses of academic leaders in Jordanian universities in the level of creative behavior because of gender variables, college specialization, academic rank, and nature of work?

To answer this question, bidirectional variance (4 Way ANOVA) as in tables (11) and (12):

Table (11) Arithmetic means and StD, the Responses to the Level of Creative Behavior Attributed to variables: gender, college specialization, academic rank and nature of work

Variable	Variable categories	Number	Arithmetic mean	Standard deviation	Adjusted mean	Standard error
Sex	male	182	3.38	0.450	3.41	0.040
	female	217	3.36	0.391	3.40	0.040
College Specialization	humanism	101	3.37	0.479	3.41	0.048
	Scientific	298	3.37	0.397	3.40	0.034
Academic Rank	professor	113	3.42	0.397	3.38	0.043
	Associate Professor	113	3.37	0.414	3.41	0.047
	Assistant Professor	173	3.34	0.434	3.44	0.045
Nature of work	Assistant to the President	55	3.46	0.436	3.30	0.037
	Dean of the College	109	3.36	0.435	3.37	0.042
	Assistant Dean	10	3.45	0.388	3.47	0.049
	Vice Dean	80	3.46	0.397	3.46	0.058
	Head of Department	145	3.29	0.400	3.43	0.132

Based on table (11), differences are the arithmetic means of the responses of the study sample in the level of creative behavior of gender, college specialization, academic rank and nature of work ensuring they are statistically significant. The one-way multi-directional variance analysis (4 way ANOVA) has been used as in Table (12):

Table (12) The analysis of monovariance multidirectional variance (4 WAY ANOVA) to show the significance of the differences in the responses of the sample members in the level of creative behavior due to gender, college specialization, academic rank and nature of work

Contrast	Sum of Squares	Degrees of freedom	Mean of squares	value (F)	Statistical significance
Sex	0.006	1	0.006	0.034	0.855
College Specialization	0.017	1	0.017	0.099	0.753
Academic Rank	0.244	2	0.122	0.707	0.494
Nature of work	1.976	4	0.494	2.863*	0.023
Error	67.270	390	0.172		
Total	4597.758	399			
Macro Corrector	69.702	398			

Table (12) shows:

1. The responses are not statistically significant in the creative behavior attributed to gender, college specialization and academic rank, according to the calculated values (q) amounting respectively (f = 0.034, 0.099, 0.707) at the significance level ($\alpha=0.855, 0.753, 0.494$) and is not statistically significant.
2. The statistically significant differences in the level of creative behavior are because of nature of work, according values (q) (f = 2.863) at the level of significance ($\alpha=0.023$) and is statistically significant at the level of significance $\alpha \leq 0.05$. To show the direction of the differences, the Bonferroni multi-comparison test was applied as in Table (13):

Table (13) (Bonferroni) test for multiple comparisons to show the trend of differences in creative behavior attributed to the nature of the work

Variable	Variable categories	Arithmetic mean	Assistant to the President	Dean of the College	Assistant Dean	Vice Dean	Head of Department
Nature of work	Assistant to the President	3.30	-	-0.07	-0.17*	-0.16	-0.13
	Dean of the College	3.37	0.07	-	-0.1	-0.09	-0.06
	Assistant Dean	3.47	0.17*	0.09	-	-0.005	0.01
	Vice Dean	3.46	0.16	0.09	0.01	-	0.03
	Head of Department	3.43	-0.13	0.06	-0.04	-0.03	-

Table (13) shows that the pattern of differences in creative behavior was in favor of the assistant dean at the expense of the assistant president.

The researcher interprets this result based on the academic leaders of the innovators. Therefore, their agreement on the creative behavior stems from the creative ability that they refrain from basically, in addition to the insatiable appetite of those qualified to lead change and advancement of the academic level and the reputation of their universities. This confirms both Al-Muqabala (2016); Al-Shahrani (2018); Jibrini (2016).

Recommendations:

The researcher recommends:

1. The need to assume administrative leadership positions in universities based on the possession of innovative leadership capabilities, and those who have been characterized by behavior accused of creativity.
2. The necessity of holding training workshops on innovative leadership and creative behavior.
3. More studies are required on the variables of the study on other samples to the use from the current study and its generalizations.

Bibliography

- Al-Hajjaj, H. (2017). The degree of non-innovative leadership practice among public secondary school principals in the education of the university brigade from their point of view and their teachers. *Islamic University of Psychological and Educational Studies*, 27(6).
- Al-Jumaili, S. M. H. (2020). The Role of Transportation in Transporting: Agricultural Products in Kirkuk Province. (PhD unpublished). University of Baghdad, College of Education - Ibn Rushd For humanities.
- Al-Masaeed, L., & Tanash, S. (2019). The reality of creative behavior among faculty members at Al al-Bayt University. *Jordanian Educational Journal*, 4(1).
- Al-Muqabala, M. A.-H. (2016). The degree of delegation of authority and its relationship to the creative behavior of heads of academic departments from the point of view of faculty members at Al al-Bayt University. *Al-Manara Journal for Research and Studies*, 2(22).
- Al-Shahrani, N. (2018). The degree to which academic leaders at the University of Bishe practice innovative leadership from the point of view of faculty members. *International Journal of Educational and Psychological Studies*, 3(3).
- Celik, A., Cakici, A. B., & Celik, N. (2014). The effects of employee empowerment applications on organizational creativity and innovativeness in enterprises: The case of Oiz. *European Scientific Journal*, 10(10).
- Chang, Y.-s., Chen, M. Y.-C., Chuang, M.-J., & Chou, C.-h. (2019). Improving creative self-efficacy and performance through computer-aided design application. *Thinking Skills and Creativity*, 31, 103-111.
- Eid, H. (2020). Developing the performance of university leaders in light of the challenges of the twenty-first century. *International Journal of Research in Educational Sciences*, 3(1).
- Gamze, S. (2014). The new leadership model of university management for innovation and entrepreneurship. *Eurasian Journal of Educational Research*(57), 73-90.
- Hessa, A.-Y., & Al-Rashed, A. (2020). Obstacles to the practice of innovative leadership at the College of Education in Al-Kharj at Prince Sattam bin Abdulaziz University. *Scientific Journal of Education*, 36(6).
- Jibrini, S. (2016). The degree of innovative leadership practice among educational leaders and its relationship to decision-making effectiveness from the point of view of deans of faculties and heads of academic departments in Palestinian universities. (Master Unpublished). An-Najah National University,
- Jumaili, M. (2017). The Impact of Organizational Climate on Creative Behavior in Jordanian Private Universities: The Mediating Role of Organizational Citizenship. (PhD). University of Jordan,
- Karbouli, H. (2019). The role of administrative empowerment in promoting creative behavior: An exploratory study of a sample of senior management in the General Directorate of Education in Anbar. *Anbar University Journal of Economic and Administrative Sciences*, 11(24).

- Mohsen, M. (2018). Innovative leadership among secondary school principals in Baghdad Governorate. *Journal of the Faculty of Education for Girls*, 19(7).
- Şen, A., & Eren, E. (2012). Innovative leadership for the twenty-first century. *Procedia-Social and Behavioral Sciences*, 41, 1-14.