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TOWARDS ENHANCING CREATIVITY AND INNOVATION IN EDUCATION SYSTEM FOR YOUTH IN HAIL REGION

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Abstract. *The developments of countries are always based on the efforts of their creative people, as the spread of an organizational culture that stimulates creativity and innovation and sponsors its owners. Therefore this study aimed to explore the creativity and innovation involvement in educational curriculum and to assess the challenges and opportunities in educational system among youth in Hail Region. To achieve these objectives, explanatory and descriptive research designs were employed with quantitative research approach. The questionnaire was the instrumental tool for collecting data with simple random sampling technique. 341 valid responses have been analyzed by using SPSS software. The study's findings revealed that students perceive themselves as engaging in creative thinking activities and receiving creativity and innovation training at the university. The respondents strongly agree that incorporating technology tools and techniques into education enhances creativity and innovation, and there are other factors that also contribute to these opportunities. Resistance to change and limited access to information were identified as significant challenges to developing creativity and innovation skills among the respondents. The study found a moderate, positive correlation between involvement in creativity and innovation and the educational curriculum. Based on these results, it is recommended that the university continue prioritizing creative thinking activities and innovation training for students while addressing challenges related to resistance to change and access to information. Further integration of creativity and innovation concepts into the curriculum may also be beneficial, along with continued use of technology tools and techniques to enhance these skills in education.*

Keywords: *Educational System, Creativity, Innovation, Hail Students, Saudi Arabia.*

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1. INTRODUCTION

Education is a crucial social institution that is necessary for the survival and prosperity of society. It must not only be thorough, long-lasting, and excellent, but it must also constantly adapt to keep up with the rapidly changing and unpredictable globalized world. This transformation must be systematic, reliable, and expandable. Therefore, school teachers, college professors, administrators, researchers, and policy makers are required to innovate in the theory and practice of teaching and learning as well as all other aspects of this intricate organization to guarantee that all students are well-prepared for life and work with high-quality education.

The success of countries in a constantly changing global economy is heavily reliant on the caliber and amount of knowledge, innovation, and creativity skills that their human resources possess. Effective strategies employed by modern economies are centered on creativity, innovation, and quality systems. These strategies aim to generate and adopt new knowledge to enhance the worth of products, processes, and services provided to consumers. Policymakers and industry professionals worldwide have acknowledged these factors as a means of gaining a competitive edge.

In an effort to move away from dependence on oil and towards a knowledge-based economy, Gulf countries have recently implemented educational and research reforms. In Saudi Arabia, these changes include combining the ministries of education and higher education, building new universities and research facilities, and establishing centers for innovation and technology. These efforts are aimed at promoting creativity and innovation through various programs (Khan et al., 2014; Khorsheed & Al-Fawzan, 2015). However, Al-Sudairi & Bakry (2015) note that despite Saudi Arabia's spending on education surpassing that of other distinguished countries such as Malaysia and Brazil, the state of knowledge delivery in the country is still below expectations compared to these nations. They suggest that building a national culture that promotes knowledge generation and innovation is necessary to encourage people's drive towards making efficient use of newer knowledge. Iqbal (2011) presented an overview of creativity and innovation in Saudi Arabia and discussed the low level of "creative outcomes" reported in the Global Innovative Index (GII). It was concluded that this area requires further study and support in Saudi Arabia.

Creativity is thinking up new things. Innovation is doing new things. Creativity is one of the topics that have drawn the attention of man since ancient times, due to its importance in developing what civilization has produced in the material or intellectual aspects, or inventing what was not present in it. The aim of this is to facilitate human life and make it more tender and joyful. Creativity has many definitions, including McKinnon's definition as "a new, unfamiliar or statistically diverse response (MacKinnon, 1963) that seeks to achieve a valuable goal. It continues to improve and develop to its fullest. Scientific interest in the study of creativity began in the second half of the twentieth century, and remarkably among all advanced nations that are moving towards progress, this topic has received attention in America, Europe and Japan.

Innovation is widely recognized as one of the primary drivers of economic development and society improvement. Enhancing creativity and successfully managing

innovation processes have emerged as key strategies for raising the caliber of social services, including education (OECD, 2010). In the past ten years, both national and international agents working to improve education have prioritized developing and implementing policies for the education sector's innovation, defining and measuring educational innovation, and fostering innovative pedagogies (Cachia et al., 2010; European Commission, 2013; OECD, 2014, 2016; Ahmed et al., 2023; Muzeyin et al., 2022).

Accordingly, many programs have been prepared to develop creativity among students, separately from, or within, the curricular subjects. The researchers tried to find out any studies in the same field but only few studies was conducted and it was focusing on another factors and areas such as the study that conducted by Aichouni et al., (2014) Hence, this study is launched to expand the topic in the scope of the study and to answer the questions of what is the relationship between creativity and innovation and educational curriculum? And what are the challenges and opportunities of creativity and innovation in educational system. All the sectors in the country are working to achieve the vision of 2030, without creativity and innovation it is not possible to achieve it. Therefore, the current study carried out to explore the creativity and innovation and its challenges and opportunities in educational system among the youth in Hail region and to fill the research gap that the previous studies did not study it.

Literature Review

Creativity and innovation offer a wide range of opportunities for individuals, teams, businesses, organizations, and society as a whole. By embracing these concepts and constantly striving for new ideas and solutions, we can unlock our full potential as individuals while also driving progress towards a brighter future.

A survey of previous studies in the field of creativity indicates that some of them directed towards building tests to measure creativity and innovation, and diagnose it according to the theoretical models developed by their owners, such as the theory of (Guilford, 1950; Torrance, 1967; Gruber, 1993). Some tested those theories and components of creativity that I put it forward and the dimensions of the standards developed in the light of those theories, some of which concluded that creativity consists of two dimensions or two factors: development that includes details and abstract addresses, and innovation that includes flexibility and originality. As for the other type of studies, which are many, they were also based on creativity theories in preparing and building programs for the development of creativity, examples of which are the programs of (Davies and Scott, 1971; Torrance, 1972; Gage and Berliner, 1998) to train fifth and sixth grade students on creative thinking. The students who trained outperformed those who did not. Gage and Berliner point out Also to Torrance's longitudinal follow-up study that he conducted over a year on low-income minorities in America, that these children changed their lives radically after training them to think.

The review of the previous studies mentioned, shows the efforts that have been made, and are still being made, to prepare programs aimed at developing creativity, and to show the components of creativity, and its relationship to some personal and environmental variables. And teachers' assessment of their sufficiency in developing and appreciating creativity among their students, and students' assessment of their degree of creativity, and preparing tests and standards for creativity. The current study benefited from the theories

and previous studies in constructing the questionnaire, and was partially similar with some studies in dealing with the issues which they develop for creativity among students.

The scientific importance of the current study is clear in that it deals with a topic that has something of novelty or an addition to studies in the field of creativity. It deals with the role of universities in the development of creativity and innovation. The practical importance of the current study is illustrated by the results it will reach, which explicitly knows the role of universities in practicing activities that develop creativity and innovation among their students. This may lead them to review their perceptions about their competencies, in light of comparing them with the results of their students' assessment of this competency. A person's innovative potential is viewed as the sum of their personal resources (assets), which are manifested in various interconnected types of activity (Ahmed and Ahmed, 2021).

Creativity

Sternberg and Lobart (1991) refer to the interest in the study of creative thinking since Sternberg pointed out in his speech to the American Psychological Association in which he presented his model of human mental construction, and called for attention and planning for it. Those interested did not leave it to chance to get creative people, but rather planned it there are many methods that are used to nurture and develop creativity directly, in separate programs of its own, or indirectly as in curricular activities across different subjects, or both methods. Further, Amabile and Pratt (2016) cited a model of organizational innovation incorporating individual creativity.

Creativity is the ability to generate new ideas, concepts, or solutions to problems. It involves thinking outside the box and breaking away from conventional ways of thinking. Creativity is not limited to artistic expression but can be applied in various fields such as science, technology, business, and education. This ability calls for creative thinking skills on both the personal and organizational level (Kashani-Vahid et al. 2017). Hon and Lui (2016) confirm Ghosh’s argument by supporting that creativity leads individuals to contribute their skills, ability, and willingness to work. Thus, Ghosh (2015) claims that creative ideas provide a base for innovation and its implementations.

In today's fast-paced world, creativity has become a crucial skill for individuals and organizations to stay competitive and innovative. It allows individuals to come up with unique solutions to complex problems and helps organizations to develop new products or services that meet the changing needs of their customers. However, creativity is not something that can be easily taught or learned. It requires a combination of factors such as curiosity, imagination, knowledge, experience, and motivation. Creativity also requires an environment that fosters experimentation and risk-taking without fear of failure. Therefore, to sustain communication and promote cooperation, employees invest their time in knowledge creation, which increases the number of new ideas they bring to their workplace (Akbari et al., 2020; Khan et al., 2020).

It is important to note that the implementation of creative thinking methods such as brainstorming, lateral thinking, mind-mapping, six thinking hats technique, and morphological analysis can greatly enhance the current levels of creativity and innovation among individuals within organizations (Pisanu and Menapace, 2014; Ahmed et al.,

2022).Creativity plays a vital role in shaping our world by driving innovation and progress. It is a skill that can be developed through practice and exposure to diverse experiences. As we continue to face new challenges in our society, creativity will remain an essential tool for solving problems and creating a better future for all.

Innovation

Innovation has been a topic of interest for researchers and scholars from various fields for many years. Some of the previous studies on innovation include: Schumpeter's Theory of Innovation: Joseph Schumpeter, proposed the theory of innovation in the early 20th century. According to his theory, innovation is the driving force behind economic growth and development (Sweezy, 1943). The Diffusion of Innovations: Rogers (1962) developed the theory of diffusion of innovations. This theory explains how new ideas and technologies spread through society. These are just a few examples of previous studies on innovation. There are many more theories and approaches to innovation that have been explored by researchers over the years.

Baregheh et al. (2009) stated that Innovation is the multi-stage process whereby organizations transform ideas into new or improved products, services, or processes in order to advance, compete, and differentiate themselves successfully in their marketplace. Craft (2005) noted that understanding of innovation and creativity has developed and broadened over time. Initially, in the early 1900s, creativity was considered to be an innate and enigmatic quality possessed by certain individuals. Furthermore, creativity was primarily associated with the arts but later expanded to encompass science, technology, and other fields. In the present day, in the 21st century, creativity is increasingly viewed as a collaborative and cooperative approach to generating meaning and addressing problems. Over the past two decades, the terms "creativity" and "innovation" have been prevalent in business and management jargon as well as political and academic discourse. Innovations are about quality and productivity of learning (this does not mean we can forget about moral development, which prepares young people for life, work, and citizenship) (Camins, 2015). Innovation competence, like any competence, involves the integration of knowledge, skills and attitudes (Ovbiagbonhia, 2019).

Innovation is the practical application of ideas that leads to new products or services or enhancements in the provision of existing products or services. The role of innovation in education is not just confined to the classroom but can also be extended to all sub-systems from the lowest to the highest levels of a school's management and administrative structure, say experts at the School Policy Institute (SPI) in London. Defining and assessing innovation as a general education sector phenomenon, encompassing all sub-systems from the lowest to the highest level, is one of the issues confronted by research on educational innovation.

Innovations in education are of particular importance because education plays a crucial role in creating a sustainable future (Serdyukov, 2017). Innovations are nowadays measured and compared internationally. According to the 2011 OECD report (OECD, 2014), the USA was in 24th place in educational innovativeness in the world.

2. METHODS

2.1. Research design

This study is based on quantitative research methods. The quantitative aspect of the research approach is through a survey that used questionnaires as a measuring instrument to obtain information about creativity and innovation in the educational system among students at Hail University. The study also employed descriptive and explanatory research design, which examines the cause-and-effect relationship between variables (Kothari, 2004).

2.2. Participants

The participants of the this study were students in college of education, college of business administration, college fine arts and literature, and college of engineering in all levels in the 2022/2023 academic year. 387 questionnaires were distributed online to all the selected respondents who were selected through a simple random sampling technique.

2.3. Instruments and Procedure

Questionnaire has been used as an instrumental tool for collecting the data. The questionnaire was designed based one the five point Likert's rating scale to measure the different aspects of the subject from the student's perspective. The questionnaire consisted of closed-ended questions that were basically designed on a review of literature on creativity and innovation, as well as consultations with experts in the field. It was pre-tested on a small sample of individuals to ensure its validity and reliability.

Data collected from the survey questionnaire were analyzed using SPSS software. Descriptive statistics such as mean, standard deviation were used to summarize the data. Inferential statistics such as correlation analysis were also conducted to examine the relationships between variables (Ahmed et al., 2022).

To ensure the accuracy of the data analysis, the survey's internal consistency was evaluated by computing Cronbach's alpha statistical factor before conducting any statistical analysis. This factor measures how effectively the various items in the survey assess the same concept. Typically, reliability coefficients (Cronbach alpha) of 0.70 or higher are deemed satisfactory and demonstrate that the survey component is dependable and can provide a reliable measure. Table 1 displays the computed coefficients, which are all above 0.7.

Table 1. Reliability Test Results

Dimensions	Cronbach"s Alpha Coefficient	Number of Items
Creativity and Innovation Involvement	0.884	7
Opportunity of creativity and Innovation	0.846	5
Challenges of creativity and innovation	0.893	6
Educational System	0.926	7
Total	**0.962**	**25**

Source: Developed by the authors (2023)

Overall, the research methodology used in this study provided valuable insights into the creativity and innovation involvement among young individuals and the challenges and opportunities that affect them in educational system.

The research was conducted in accordance with ethical considerations. All the participants were informed about the purpose of the study and could withdraw their participation at any time.

3. RESULTS

This section presents the demonstration of data analysis and interpretation of the study's findings. The primary aim of this research was to explore creativity and innovation involvement in educational curriculums, as well as to identify the challenges and opportunities associated with these skills in the education system. The data analysis and interpretation were conducted in accordance with the research objectives, resulting in conclusions being drawn from the data.

Table 2. Creativity and Innovation Involvement

Statements	Mean	Std. Deviation	Perception	Rank
The students are involved in creative thinking activities.	4.132	.866	Agree	1
Students participate in creativity and innovation training at the university.	4.088	.922	Agree	2
There are regular creative and innovative activities in the classroom.	4.035	1.019	Agree	3
Students are consulted about the creativity and innovation training programs in the university.	3.803	1.157	Agree	6
The university has a motivational mechanism for increasing creativity and innovation among students.	3.659	1.181	Agree	7
The students participate in the creativity and innovation programs planning.	3.835	1.047	Agree	5
I am regularly engaged in creative and innovative types of work.	3.994	.954	Agree	4
The Overall Arithmetic Mean of Creativity And Innovation Involvement.	**3.935**	**.788**	**Agree**	

Source: Developed by the authors (2023)

Based on the data provided in Table 2, it seems that the students generally perceive themselves as being involved in creative thinking activities and participating in creativity and innovation training at the university which scored the highest mean 4.132 and 4.088 respectively. However, the number of students participating in the planning of creativity and innovation programmes is less, which scored the second lowest mean of 3.803 in the above dimension. The students also feel less consulted about creativity and innovation training programs and less motivated by the university to increase their creativity and innovation. Overall, the arithmetic mean suggests that there is moderate involvement in creativity and innovation among the students.

Based on the data provided in table 3, it appears that the respondents generally strongly agree that using technology tools and techniques in the educational system enhances creativity and innovation with arithmetic mean 4.322 and standard deviation 0.790 which indicate that there is harmony and consistency among respondents' answers. They also agree that diversity of manpower is a critical source of creativity and innovation with mean value of 4.152 which is the second highest in this dimension.

Table 3. Opportunity of Creativity and Innovation

Statements	Mean	Std. Deviation	Perception	Rank
Using technology tools and techniques in the educational system enhances creativity and innovation.	4.322	.790	Strongly Agree	1
There is recognition for creative and innovative students.	3.928		Agree	4
Diversity of manpower is one of the critical sources of creativity and innovation.	4.152	.854	Agree	2
The adopted leadership style in the university encourages creativity and innovation.	3.938	1.039	Agree	3
The educational environment in the university supports creativity and innovation skills.	3.759	1.095	Agree	5
The Overall Arithmetic Mean of Opportunity Of Creativity And Innovation.	**4.022**	**.772**	**Agree**	

Source: Developed by the authors (2023)

However, there is recognition for creative and innovative students and the educational environment in the university supports creativity and innovation skills has scored the second lowest and the lowest in this dimension with a mean value of 3.928 and 3.759 respectively. The overall arithmetic mean of opportunity of creativity and innovation is 4.022, which suggests that there are opportunities for creativity and innovation in the university. However, it is important to note that there is some variability in perception among respondents, as indicated by the standard deviations for each factor.

Table 4. Challenges of Creativity and Innovation

Statements	Mean	Std. Deviation	Perception	Rank
Easy access to information that supports creativity and innovation skills.	3.900	.997	Agree	2
There is resistance to change that leads to creativity and innovation.	3.950	.945	Agree	1
There is skilled manpower in the university that initiates in creating creativity and innovation opportunities.	3.832	1.064	Agree	3
There is a good collaboration between management and faculty members in motivating creativity and innovation.	3.824	1.115	Agree	4
The adopted educational approaches in the university are paying enough attention to the students.	3.806	1.105	Agree	5
The university environment is encouraging creativity and developing innovation skills.	3.721	1.181	Agree	6
The Overall Arithmetic Mean of Challenges Of Creativity And Innovation .	**3.839**	**.865**	**Agree**	

Source: Developed by the authors (2023)

Based on the data provided in table 4, it appears that the respondents generally agree that there is resistance to change that leads to creativity and innovation and easy

access to information supporting creativity and innovation skills is important (with a high mean score of 3.950 and 3.900 with a low standard deviation of 0. 945 and 0.997) respectively. Additionally, respondents generally agree with slight inconsistency that the adopted educational approaches in the university are paying enough attention to the students (with a mean score of 3.806 and a standard deviation of 1.105), and that the university environment is encouraging creativity and developing innovation skills (with a mean score of 3.839 and a low standard deviation of .865) as they scored the lowest mean among the statements of the above dimension. Overall, it seems that respondents perceive challenges related to creativity and innovation at their university, but also recognize positive factors such as skilled manpower, collaboration between management and faculty, and an encouraging environment for developing these skills.

Table 5. Educational Curriculum

Statements	Mean	Std. Deviation	Perception	Rank
The curriculum is designed based on the 2030 vision to improve creativity and innovation skills.	3.932	1.078	Agree	1
The educational curriculum affects the creativity and innovation skills among students.	3.973	1.032	Agree	2
There are creative activities in each unit in the course description and contents.	3.656	1.176	Agree	7
The educational curriculum in the university helps in developing creativity and innovation skills.	3.832	1.083	Agree	4
The curriculum highlights the awareness of the importance of creativity and innovation skills.	3.753	1.126	Agree	6
The educational activities in the university curriculum encourages creativity and innovation opportunities.	3.774	1.078	Agree	5
The university faculty members encourage students to acquire and develop creativity and innovation skills.	3.871	1.145	Agree	3
The Overall Arithmetic Mean of Educational Curriculum.	**3.827**	**.919**	**Agree**	

Source: Developed by the authors (2023)

The data presented in the table 5 shows the perception of respondents regarding the educational curriculum and its impact on creativity and innovation skills. The mean scores for all factors are above 3, indicating that respondents generally agree with the statements. The standard deviation values are relatively low, suggesting that there is little variation in responses among the participants. The statements stated curriculum is designed based on the 2030 vision to improve creativity and innovation skills and the educational curriculum affects the creativity and innovation skills among students has scored the highest mean (3.932 and 3.973). Correspondingly, the curriculum highlights the awareness of the importance of creativity and innovation skills and there are creative activities in each unit in the course description and contents scored the second lowest and lowest mean (3.753 and 3.656). Overall, the results suggest that the educational curriculum is designed to improve creativity and innovation skills, and it has a positive impact on students' abilities in these areas. The presence of creative activities in each unit

of the course description and contents, as well as encouragement from faculty members to acquire and develop these skills, further supports this conclusion.

Table 6. Correlation between Creativity and Innovation Involvement and Educational Curriculum Correlations

Correlations

		Creativity And Innovation Involvement	Educational Curriculum
Creativity And Innovation Involvement	Pearson Correlation	1	.688**
	Sig. (2-tailed)		.000
	N	341	341
Educational Curriculum	Pearson Correlation	.688**	1
	Sig. (2-tailed)	.000	
	N	341	341

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Developed by the authors (2023)

Results of table 5 depict the correlation between creativity and innovation involvement and educational curriculum is moderate and positive, with a Pearson correlation coefficient of .688. This indicates that as creativity and innovation involvement increases, so does the educational curriculum. The correlation is also statistically significant at the 0.01 level, meaning that it is unlikely to have occurred by chance. This suggests that there may be a causal relationship between creativity and innovation involvement and educational curriculum, or that they are both influenced by a common factor. Overall, these findings highlight the importance of incorporating creativity and innovation into educational curricula to promote student engagement and achievement.

4. DISCUSSION

Involving students in creativity and innovation is essential for their personal and academic growth. It helps them to develop critical thinking skills, problem-solving abilities, and encourages them to think outside the box. Creativity and innovation are crucial for success in today's world, where new ideas and solutions are needed to solve complex problems. The results of the study revealed that the students generally perceive themselves as being involved in creative thinking activities and participating in creativity and innovation training at the university which support the proposed idea of the authors, in addition to that the results is in line with results of Ghosh, 2015; Huang et al., 2022; Ye et al., 2022; Thomran et al., 2022).

Creativity and innovation in the educational system can provide opportunities for personalized learning, collaboration, critical thinking skills, and engagement. However, challenges such as resistance to change and lack of resources must be addressed to fully realize the potential of creativity and innovation in education. Encouraging student involvement in creative projects can also help foster a culture of innovation in the classroom. This study aimed to explore the creativity and innovation involvement in

educational curriculum and to assess the challenges and opportunities of creativity and innovation in educational system.

Resistance to change can hinder creativity and innovation in universities. When people are resistant to change, they may be less willing to try new things or take risks, which can stifle creativity and limit the potential for innovation. Additionally, resistance to change can create a culture of complacency and discourage individuals from thinking outside the box or challenging the status quo. Therefore, it is important for organizations to foster a culture that embraces change and encourages experimentation in order to promote creativity and innovation. The results of the study indicated that there is resistance to change among the respondents in the university which it became a challenge to spread out creativity and innovation skills. The result is in line with (Rosso, 2014; Banaji et al., 2014; DeHaan, 2017; Thomran et al., 2021). Education in Saudi Arabia is still behind global standards (Alamer, 2014; Seman et al., 2022) which are considered as one of the challenges to creativity and innovation.

The educational curriculum plays a crucial role in fostering creativity and innovation among students. According to Barbot et al., (2015) a well-designed curriculum can provide opportunities for students to develop their creative thinking skills, explore new ideas, and experiment with different approaches to problem-solving. The results of the study showed that the curriculum is designed based on the 2030 vision to improve creativity and innovation skills with a high agreement perception which means the curriculum is playing a significant role in creativity and innovation. In 2012, Saudi Arabia showed significant progress and was ranked 29th in the same list. Creativity in these education policies is still often defined within the scope of innovation in science and technology (Hui & Lau, 2010; Beghetto, 2007).

According to Bocconi et al., (2012), creativity, innovation, and the education system are interconnected. Educational institutions, ranging from primary to higher education, provide ideal environments for learners to engage in innovative experiences that can be applied in real-life situations through creative projects. The findings of this study reveal that students agree that their educational environment, including teachers, schools, and the curriculum, positively contributes to the development of their innovative and creative skills. However, there is some variation in responses among students which suggests a lack of awareness regarding innovation and creativity in the Saudi educational context. This observation is consistent with previous studies conducted by Al-Qarni, 2010; Iqbal; 2011; Alamer, 2014).

5. CONCLUSIONS

Creativity and innovation are essential skills that should be incorporated into educational curriculums. These skills are crucial for students to develop as they prepare for the future workforce, which is increasingly focused on innovation and problem-solving. The primary objective is to explore creativity and innovation involvement in the curriculum and assess challenges and opportunities from the perspective of Hail University students. Quantitative approach with explanatory research design used to explore relationships between variables. A survey was conducted using a Likert rating scale to measure different aspects of the subject from the respondent's perspective. The questionnaire was

developed based on literature review and expert consultations, pre-tested for validity and reliability, and distributed to 387 randomly selected respondents. Closed-ended questions were used to gather data, which were analyzed using SPSS software. Descriptive statistics such as mean and standard deviation were used to summarize the data, while inferential statistics such as correlation analysis were conducted to examine relationships between variables. Before conducting statistical analysis, the internal consistency of a survey was evaluated using Cronbach's alpha. A reliability coefficient of 0.70 or higher is considered satisfactory and indicates that the survey component is dependable and can provide a reliable measure.

The results of the study showed that the students generally perceive themselves as being involved in creative thinking activities and participating in creativity and innovation training at the university. The results also indicated that the respondents generally strongly agree that using technology tools and techniques in the educational system enhances creativity and innovation and there are many other factors that increase the creativity and innovation opportunities as discussed before. Resistance to change and access to information is one of the most challenges to creativity and innovation skills among the responses of the respondents as the results of analysis indicated. The study found that the correlation between creativity and innovation involvement and educational curriculum is moderate and positive. Based on the results of the study, it is recommended that the university continue to prioritize and invest in creative thinking activities and innovation training for students. Additionally, efforts should be made to address the challenges of resistance to change and access to information in order to further enhance creativity and innovation opportunities. The moderate and positive correlation between creativity and innovation involvement and educational curriculum suggests that further integration of these concepts into the curriculum may be beneficial. Finally, continued use of technology tools and techniques should be encouraged as they were found to enhance creativity and innovation in the educational system.

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Conflict of interest

The authors declare no conflicts of interest.