

# Statistical Analysis of Entrepreneurship and Creativity as Identity Builders in Saudi Arabia context

Ramzia Albakri<sup>1</sup>, Eman Attia<sup>2,3,\*</sup>, M. A. Hafez<sup>4,5</sup>, and Lina Abbas<sup>6</sup>

<sup>1</sup>MIS Department, College of Business Administration, University of Business and Technology, Jeddah, Saudi Arabia

<sup>2</sup>Accounting Department, College of Business Administration, University of Business and Technology, Jeddah, Saudi Arabia

<sup>3</sup>Accounting and Finance Department, College of Management and Technology, Arab Academy for Science & Technology and Maritime Transport, Smart Village, Giza, Egypt

<sup>4</sup>Faculty of Engineering and Quantity Surveying, INTI International University Colleges, Nilai, Malaysia

<sup>5</sup>Faculty of Management, Shinawatra University, Pathum Thani, Thailand

<sup>6</sup>College of Business, University of Jeddah, Jeddah, Saudi Arabia

Received: 22 Apr. 2025, Revised: 12 May 2025, Accepted: 22 Jun. 2025.

Published online: 1 Jul. 2025.

**Abstract:** In this paper, we examine the impact of entrepreneurship on the identity of Saudi women. Entrepreneurship plays a crucial role alongside the government in providing Saudi girls' schools with skilled labor and high-quality services. Aligned with Vision 2030, we employ quantitative analytical research to explore how this relationship influences the school environment. We assert that fostering a safe and healthy atmosphere in girls' schools enhances the performance and productivity of both Saudi students and teachers. Additionally, this research contributes to understanding Saudi women's identity by evaluating how a healthy school environment shapes their personalities and showcases their unique identities.

**Keywords:** Entrepreneurship, Saudi governmental schools, Saudi context, vision 2030.

## 1. Introduction

In Saudi Arabia, and line with the 2030 Vision, entrepreneurship incorporation with the governmental sector generates a new platform of distinguished services in the country in different fields. In fact, "the ambitious objectives of Vision 2030 require that Saudi Arabia unleashes its entrepreneurial potential and creates many enterprising firms in high value-added sectors" (Ghalayini, 2018). Accordingly, a prominent corporation between the entrepreneurs and the governmental sector occurs in education. One notable example of this corporation is the maintenance and cleaning work in the governmental girls' schools that seek to provide students with a clean, safe, and healthy educational environment for students. The announcement of the 2030 Vision by Crown Prince Mohammad Bin Salman has granted the chance for optimistic entrepreneurs to take part in the country's promising future. In the Saudi governmental girls' schools, maintenance and cleaning work are essential parts of the schools' healthy educational environment. This environment is substantial for the student's nurturing, as they represent the country's future. The effect of a healthy educational environment on students was developed in The Humanistic Theory in Education formed by Abraham Maslow, Carl Rogers, and James F. T. Bugental in the early 1900s. As published on the website of Western Governors University in July 2020, this theory states that "the student is the authority on how they learn and that all of their needs should be met for them to learn well" (2020). With this idea being considered, students cannot learn and understand well if there is a problem or a failure in the surrounded environment. For example, if they are sitting in a class where there is a failure in the air conditioning, the lighting, or any other facilities, this will distract their attention. Having a problem with any of the factors in the educational environment causes dispersion in the concentration of students. As the governmental girls' schools comprise the environment surrounding the educational process, which cannot be derelict, the Humanistic Theory in Education can be useful to understand how a healthy educational environment affects students' creativity.

The role of governmental girls' schools in ensuring a healthy educational environment is one of the key factors in shaping the fabric of Saudi students — who will grow to become women playing important roles in society. Education has often been heralded as a key-to empowerment for women, empowering them to contribute towards the economic development of the country while becoming responsible citizens, spouses, parents and members of the family at large (Shetty & Hans, 2015).

The identity formation of an educated Saudi woman is intrinsically tied to her "identity" which can be conceptualized as "the traits and characteristics, social relations, roles, and social group memberships that an individual considers to be a key part of

\*Corresponding author e-mail: [e.attia@ubt.edu.sa](mailto:e.attia@ubt.edu.sa)

who he or she is" (Oyserman et al. 2012). As women continue to fight for their roles in society, they leave avenues to identify themselves and consolidate their vinculum in society. According to Bassi (2021), women seek to find a space "where they can author themselves and deliver their message into the world" to identify who they are and how they articulate their social roles. And create the spaces where students can develop these identities and express their viewpoints and contribute to their own self-concept, given that schools are the primary places in which this learning and self-expression occurs.

According to the theory of Identity-Congruent Behavior and Identity Based Motivation from Oyserman (2009), and later elaborated by Oyserman, Elmore, and Smith (2012), people tend to act in congruence with their self-identity for self-preservation purpose. In its simplest form, this theory states that individuals are attracted to situations that offer less restriction on behaviors that reinforce their self-concept, allowing them to avoid unwanted negativism from the limitations of others. Using evidence, this paper presents an argument against this notion by explaining how people structure their experience to avoid situations that would undermine their own self-image and identity.

Entrepreneurship and Creativity: Fuel Bowl for Reinforcing Saudi Students Identity Appeal to achievement becomes the strongest way to validate identity (in comparison to others in any given category, recall Bell & Duran, 2007). As schools create programming where entrepreneurial and creative endeavors are interwoven, they give students opportunities to participate in identity-affirming experiences that promote personal and social integration.

### 1.1 Importance of the Research and Motivation

These days witness an improvement in different sectors in Saudi Arabia. The Vision of Crown Prince Mohammad Bin Salman has inspired ambitious youth and entrepreneurs to engage in society with creative projects and businesses. A healthy educational environment has become more favorable and energetic for students, and this environment affects the education process and outcomes. Accordingly, it has a fingerprint on students' identities.

This research studies the effect of the maintenance and cleaning work, that entrepreneurs contribute to governmental girls' schools in providing a convenient environment for students. A compatible school environment facilitates creativity and makes schools appropriate places to learn new acquaintances and evolve one's identity. Altogether, the female students at schools become creative and demonstrate their identities.

### 1.2 Problem Statement:

Maintenance and cleaning works at the Saudi governmental schools contribute to the effectiveness of the educational environment at governmental girls' schools. They provide the appropriate environment for supporting creativity and enhancing the Saudi female student identity.

### 1.3 Research Questions:

1. What is the role of maintenance, healthy educational environment, and cleaning work at governmental girls' schools?
2. How a healthy educational environment contributes to the performance of the students?
3. How does creativity enhance Saudi student identity?
4. How does a healthy school environment affect students?

### 1.4 Research Objectives:

The researcher wants to achieve through the proposed research the following objectives:

- 1- Identifying the effect of maintenance and cleaning work at governmental girls' schools.
- 2- Identifying how a healthy educational environment contributes to the creativity of the Saudi female students.
- 3- Identifying how creativity enhances the Saudi female student identity.
- 4- Identifying how a healthy school environment affects students.

The first objective focused on determining the impact of school maintenance and cleaning work, and the extent to which it attracts Saudi female students and encourages parents to choose the appropriate school for their daughters. The intended questions are to be directed to parents and the school principal to determine the extent of attractiveness and to know the transfer rates and transfer of female students to and from school. The second objective shows the impact of a healthy environment on creativity among female students and directs questions to the health advisor and student advisor. The third goal is based on the availability of the environment and healthy attractiveness. The Saudi identity for female students is achieved, and the 2030 vision is achieved accordingly. The fourth goal depends on a previous study that states the effect of a healthy school environment on students.

## 2. Literature review

The current study aims to shed light on the role of creativity in enhancing the Saudi identity, as the study is applied to female students in public schools in Jeddah, Saudi Arabia. School maintenance and cleaning work play a major role in encouraging parents of female students to register their daughters in the targeted schools. The provision of a healthy school environment is one of the main motives for the creativity of female students and thus leads to enhancing the Saudi identity line with Vision 2030.

There are multiple studies that indicate the impact and role of entrepreneurship and creativity in promoting identity in studies related to educational institutions and business companies. The following is a definition of some concepts for some of the terms mentioned in the study and an account of the study literature. Al-Buqami & Al-Alfy (2018) concludes that a field study had been carried out by school principals to know the relationship between the school environment that is attractive to students based on the principals' opinion. The results of the study shows that modern or better environment schools are distinguished by less size and more organized than traditional schools, so the study recommended improving the educational environment in schools to enhance attractiveness.

A study was conducted by Frank & Rosén (2010) which aimed to identify the effect of cleanliness and the appropriate school environment in enhancing the reading skill of students in schools. The study revealed that the role of cleanliness and the appropriate environment is good in creating the learning environment. The study concluded that the safety of the environment plays an essential role in enhancing the differences in students' reading abilities. Therefore, a healthy environment in schools is considered one of the factors affecting the enhancement of students' reading skills and the performance of teachers.

Providing a healthy environment is a goal that every circumspect organization is keen to achieve. One primary step in achieving this environment is the periodical maintenance work in the place (Sullivan et al 2002). The authors of the book define maintenance and operations as "the decisions and actions regarding the control and upkeep of property and equipment ". Furthermore, Jasiulewicz-Kaczmarek, & Drożyner (2013), in their work on the role of maintenance in reducing the negative impact of a business on the environment, assures that "regular professional maintenance ensures the most eco-efficient use of the equipment and the longest, cleanest life cycle, with the smallest environmental impact. The expert maintenance work provides the most environmentally friendly usage of the equipment, which affords an appropriate environment for productivity. The study that was conducted by Hänninen, & Haverinen. (2015) focused on the policies taken by schools in providing a healthy school environment that helps in attracting students and creating a learning environment for kindergarten students. The study found the challenges of a healthy environment in kindergarten schools, which are represented in the presence of environmental pollutants, poor lighting, health problems, and the use of various means of transportation. The study recommended taking measures to improve the healthy environment, provide adequate lighting, reduce noise, facilitate appropriate transportation for kindergarten children, and address all risks to the school environment.

According to the study of Bennett, Dawn, (2012), there is a relationship between the availability of a healthy school environment and creativity, and through creativity, students can enhance the role of identity. The Australian study aimed at the role of creativity and employment and found that creativity plays a major role in promoting and developing identity. There are multiple definitions of the term creativity. It is defined according to Harris (1998) as a method or ability by which an individual can make the change, renew, develop ideas, find acceptance, encourage motives, and motivate according to creativity in work and tasks. The study conducted by Anna Craft (1997), aimed to reveal the extent of the relationship between creativity and identity and the extent of its impact on teaching and teachers' keeping pace with development. The study focused on the need of children and students, the opportunity for self-flexibility, and creativity. This study presents the role and relationship of creativity and personal identity of youth and children, watching their role in teacher development and promoting creativity. Creativity is usually associated with multiple self-skills for individuals particularly the youth, the most important of which is self-identity. This is the most noticeable is that creativity is the source from which young people build identity.

According to a study carried out by Leonidas et al 2011, which intended to investigate the relationship between entrepreneurship and creativity for youth through the encouragement of family and educational administrations. The results of the study found there is a relationship between entrepreneurship and creativity, where creative graduates from management schools are more effective in entrepreneurship, and discovered the effective role of the family and the university in promoting creativity for individuals in entrepreneurship. In the study of master's thesis published in Watan News Agency and submitted to An-Najah National University in the State of Palestine, entitled "Towards encouraging a school environment for learning and self-development", a reference to the great role that the school plays in forming a strong and creative generation, which requires providing an integrated school environment, both material and moral, that encourages the student toward education and self-growth, It is what requires action on the part of the educational process, starting after we have created a better environment.

According to the study conducted by Obied, T. (2020). which addressed in Saudi schools of Al-Kharj to assess the role of the school administration in providing a sound school environment that is attractive to students and achieves the vision of 2030. The

data of the study were collected through a questionnaire. It was found that there is a clear discrepancy in the values of the study and the answers. The study recommended creating a sound school environment for discovering creators and encouraging and motivating students to develop creativity skills by providing an attractive environment and improving the psychological and cognitive health of school students to achieve the goals of the study.

The studies show that a healthy and clean environment and maintenance work are related to building the capabilities of school students and highlighting creativity in various school activities, which leads to enhancing the student identity. The findings of the studies identify that a healthy school environment is attractive to students' parents to choose the school that offers a healthy environment. Moreover, the findings show that there is a relationship between creativity and a healthy school environment and enhancing students' identity.

This section summarizes the most important academic concepts, introduces academic terms, and focuses on the study literature that summarizes studies that clarify the interpretation of the context of the goals that the study seeks to achieve.

### 3. Research Methodology

Research methodology, as C.R.Kothari (2004) states: "Research methodology is a way to systematically solve a problem." It is considered the science of how research is conducted scientifically, explaining the basis for different methodological decisions. Maylor and Blackmon (2005) likewise mention that research methodology includes various research designs, the framework for studies and the transformation of the methodology into particular research methods and data collection methods.

In order to accomplish the purpose of the study; several questionnaires will be used for empirical data collection in order to analyze the core facts and findings. Data collection procedures for this study will be as follows:

**Parents Perception Questionnaire:** A questionnaire will be asked from parents of females securing admission in government girls' schools. This seeks to determine how much a healthy school environment plays into parents' decision making of where to enroll their daughters.

We will target the head officers in maintenance and cleaning entrepreneurship companies. The aim is to study how maintenance and cleaning services affect the educational setting in governmental girls' schools. Evaluation officers, based on the school's mission and goals as well as on individual achievements of female employees in governmental girls' schools. It will help gather their views on how the maintenance and cleaning services affect the school premises in totality.

**Literature Review:** The previous works will be reviewed to demonstrate the need for a health-promoting school, as well as its relationship with other variables in education and development.

The researcher will undertake a detailed analysis after the collection of data in order to tackle the research problem. In addition, the primary findings will be supplemented with secondary data from relevant academic literature.

#### 3.1. Sampling Strategy

Data collection uses the study population which includes all students' parents, school staff, maintenance and cleaning entrepreneurs. 27 D.2 Participants 28 A convenience sampling method will be used for this study to select participants, providing accessibility and feasibility of collecting data. This study attempts to investigate the role of entrepreneurship and creativity within identity forming for students from Jeddah, Kingdom of Saudi Arabia, Governmental girls' schools.

In quantitative research (e.g., surveys, tests, etc.), we follow a similar sequential trend.

Quantitative research aims to identify general trends that may provide insight into particular research problems (Creswell 2010). This typically involves a description of a trend and indicates that the research problem can be addressed most effectively through an inquiry that establishes response tendencies among individuals and differences across groups. Additional quantitative research questions often necessitate an exploration of the causal relationships among variables to understand their influence on a specific outcome.

Therefore, in this research, structured questionnaires will be used to collect quantitative data on the educational environment in government girls' schools. This strategy allows the researcher to employ a systematic approach to studying patterns and aspects of school conditions relative to student identity construction and development.

#### 3.2. Data Collection method:

The data that the researcher needs to collect is a number of questionnaires. The researcher will design a number of questionnaires to collect data regarding the four mentioned variables in relation to the study. Questionnaires help the researcher to reach the results of how the role of entrepreneurship in providing a healthy environmental schools affect the creativity of the students and thus, their identities.

The researcher also will depend on some previous studies in relation to the variables of the study. Previous studies help the researcher to compare the results, analyze the variables, and make conclusions.

The sample of the study consists of a number of individuals who affect, or are affected by the four variables (entrepreneurship, a healthy environment, creativity, and identity).

- 1- A number of head officers of entrepreneurship in the field of maintenance and cleaning work in governmental schools.
- 2- A number of the school staff in the girls' governmental schools.
- 3- A number of the parents of female students at some of the governmental schools.
- 1- Studies that present the effect of a healthy environment at schools on students.

The data collection tool is several questionnaires that involve a number of questions that the samples are asked to answer.

### **There are three different questionnaires for three different samples:**

The first questionnaire is conducted for a random sample of parents of females students. The parents' answers to the questionnaire will help to achieve the first objective, which is to identify the effect of maintenance and cleaning work at governmental girls' schools. Their answers will help to analyze how the level of cleaning and safe environment at schools affects their decision related to engage their daughter with a specific school. All in all, this questionnaire results reflect the parent's consciousness of the effect of the school environment on their daughter's creativity.

The second questionnaire is conducted for a number of head officers in the maintenance and cleaning entrepreneurship companies. Their answers will help to achieve the same first object, which is to identify the effect of maintenance and cleaning work at governmental girls' schools. Their answers will reflect their vision regarding the importance of their work at schools.

The third questionnaire is conducted for a number of school staff at the governmental female schools. Their answers help to achieve the second and third objectives which are how a healthy educational environment contributes to the creativity of the Saudi female students, and how creativity enhances the Saudi female student identity. As the schools' employees can notify the student's activities and learning levels, they can help to reach the results regarding the two objectives.

### **3.3. Variables Measurement:**

We need to conduct theses questionnaires for parents, head officers in the maintenance and cleaning companies, and school staff because we consider that they all seek a healthy environment at school, parents usually want the best educational environment for their kids, the maintenance and cleaning company is the one to provide this healthy environment, and the school staff can notice the effect of the school environment and cleaning and maintenance work on students.

#### **Part (1) Questions directed to Parents of students:**

**1- Gender:** *Female – Male*

**Age:** *(20-30) - (31-40) - (41-50) - (51-60) – (61- above)*

**Educational level:** *Secondary school -Diploma-Bachelor - Graduate level- presecondary school*

**Importance of a healthy environment:** *very important - important – not important*

**Table 1: Part One of Questionnaire**

No	Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
2	My choice to enroll my daughter in a public school depends primarily on a healthy and safe environment					
3	The unhealthy environment at school affects my daughter's ability to learn and perceive					
4	I will have to transfer my daughter to one of the private and international schools if she does not get a healthy and safe environment in her public school.					
5	I can register my daughter in a school that has a poor healthy and safe environment just because the school is near my home.					

**The first questionnaire (for parents) consists of four parts to be answered by them:**



- 1- **The first information** which answers the questions of the gender, the age, the educational level, and the importance of healthy environment at schools.

The answers to these questions help the researcher to identify the respondents and find out if they are similar and can represent a wider population. Moreover, it makes the data easier to be compared with other data sets in comparison to previous data in the same sector, or with any other different sectors in the Saudi society.

The importance of healthy school measures the rate at which parents care for the healthy environment at their daughter's school.

- 2- **The second question** measures the parent's awareness of the importance of the healthy environment at school and to what extent it affects their decisions in choosing the school for their daughter.
- 3- **The third question** shows the parent's beliefs in the negative effects of the unhealthy environment on their daughter's ability and perception
- 4- **The fourth question** measures to what extent the safety and healthy environment affect the parent's decision in changing their daughter's school.
- 5- **The fifth question** reflects the importance of a healthy and safe environment for the parents.

**The second questionnaire (for employees and entrepreneurs of maintenance and cleaning companies)**

**Part (2) Questions directed to the Entrepreneurship:**

1. *Name (optional).*: -----

*Gender: Female – Male*

**Table 2: Part Two of Questionnaire**

No	Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
2	There is a direct way with the schools to receive complaints about maintenance, air conditioning and cleaning					
3	School complaints are dealt with seriously and quickly response					
4	You find that the hygiene tools that the company provides to schools are sufficient until the end of the month to do all matters of hygiene and sterilization, especially after the Corona pandemic and strict health measures					
5	you find the budget presented to the schools to give a certain number of cleaning workers sufficient to run the school and all its facilities to the fullest extent					
6	The quality of these hygiene tools really to clean the school and sanitize it to the required level					
7	As an entrepreneur, you find that your organization meets all the needs of the school building in terms of maintenance, air conditioning and cleanliness to the fullest extent.					

- 1- The first question answers the name (optional), and gender. The answers to these questions help the researcher to identify the respondents and find out if they are similar and can represent a wider population. Moreover, it makes the data easier to be compared with other data sets compared to previous data in the same sector, or with any other different sectors in the Saudi society. Also, the gender reflects the differentiation in concepts between males and females entrepreneurs
- 2- The second question seeks to find out if the communication between the maintenance and cleaning company and the school is available directly and to which extent. This factor tells something about the consideration of the schools needs for

maintenance and cleaning which affects its environment.

- 3- The third question is raised to measure the speed and seriousness of responsiveness from the company towards the maintenance and cleaning complaints from school. As the response from the company play a crucial role in providing a healthy environment, which on the other hand might cause dangerous problems if they are faced with the delay in response.
- 4- The fourth question focus on the sufficiency of the quantity of hygiene tools that are provided by the company for schools especially after the Corona pandemic. This factor is very important as these tools have to be available all the month to insure the same level of safety and healthy environment all the time.
- 5- The fifth question is raised to find out if there is a balance between the tools, the work, and the workers. As providing the hygiene tools is not enough to guarantee a healthy and safe environment if there are not enough workers to use them in every facility of school. It is important that all the school environment is covered with clean and hygiene work.
- 6- The sixth question is raised to know if the quality of the hygiene tools affects the level of cleaning at school. Moreover, the quality of the hygiene tools might affect the worker's skin and health and accordingly their performance and health.
- 7- The seventh question finds out to what extent the company is satisfied with its facilities it has to provide a healthy and safety environment at schools. It helps to know what are the things that help to reach the best level in providing the governmental schools with maintenance and cleaning work.

### **Part (3) Questions directed to school staff:**

#### *1. Name (optional)*

*Job description: administrative employee – health advisor – teacher – other .....*

**Table 3: Part Three of Questionnaire**

No	Statement	Strongly agree	Agree	neutral	Disagree	Strongly disagree
2	A healthy and safe environment in the school encourages student's participating in different activities					
3	You can enhance student's creativity when you organize different activities being held in a safe and healthy environment					
4	An unhealthy and unsafe environment excludes students to participate in the school's events and activities.					
5	Some maintenance and cleaning problems at school caused the absence of students					
6	The company provides cleaning and sterilization materials, insect sprays and periodic maintenance work to maintain a healthy and safe building.					
7	A healthy environment affects the employee's performance.					
8	The employee's and student's performance are affected negatively by the maintenance and cleaning problems like out-of-service air conditions or lights.					

- 1- The first question is raised to know the type of employment of the staff member. We usually think that teachers are connected most of the time with students, while there might be other members of the school staff who knows important details about students related to the researcher questions and the research objectives.
- 2- The second statement measures the effect of the school environment on students' decisions to participate in school activities.
- 3- The third statement finds out the importance of a healthy environment to school staff and their beliefs regarding its role in

enhancing students' creativity.

- 4- The fourth statement finds out if the students' participation in school activities is affected by the unhealthy environment at the school.
- 5- The fifth statement seeks to know if the maintenance and cleaning problems lead students to alienate from their school.
- 6- The sixth statement checks if the company provides schools with needed cleaning tools that are necessary for keeping the schools clean and sanitized. As the absence of these tools caused terrible smells and a poor healthy environment. Moreover, with the spread of the Covid 19 pandemic, many health precautions become compulsory for the safety of educational institutions, and providing the cleaning and sanitizing tools is one of the most important ways for keeping the school environment safe and healthy.
- 7- The seventh statement seeks to find out to what extent the school environment affects the employee's performance.
- 8- The eight statement reflects the result of the problems in maintenance and cleaning work at schools, and its effect on students and staff performance.

***Part (4)- a previous study about the relationship between a healthy school environment and students:***

According to the book *Safe and Healthy School Environments* which was written by Howard Frumkin and others (2006), "a healthy and safety school environment does more than benefit student health; it also improves academic performance and morale. It does more than protect students; it also safeguards teachers and staff". A healthy school environment affects the student's academic performance positively, which fulfills her creativity. Moreover, the writers state the importance of good lighting at schools, which is a part of school maintenance work from time to time. As a focused example of the effect of the school environment and maintenance work, the writers also state that "bad lighting can negatively impact learning. In fact, "students do not perform as well when bad lightening conditions exist". Commonly believed, lighting and air conditioning are two important factors in classes in specific and the school environment in general. Thus, any problems in these factors have a negative effect on student's learning which excludes their creativity.

The data analysis works will be performed using the software; Statistical Package for Social Sciences (SPSS) version (24), and the following statistical methods will be used in the study:

1. Cronbach's Alpha Coefficient
2. Pearson Correlation Coefficient
3. Frequencies and percentages
4. Means and standard deviations
5. One Sample T-Test
6. Charts will be drawn by using Microsoft Excel

**3.4. Statistical Analysis used in the study**

The objective of this research is to examine the function of entrepreneurship and creativity in the identity development of Saudi girl students. The research aims to analyze the impact of school maintenance and cleaning services on the educational environment through a study of governmental girls' schools in Jeddah. It will also provide insights on how a well-kept and health offering school environment nurtures baby thirst for creativity leading to self-identity.

Data will be processed, cleaned and analyzed using the SPSS version 16. The quantitative analysis will cover:

Descriptive statistics: Frequencies, percentages, means and standard deviations.

Reliability Testing: Cronbach's Alpha Coefficient to assess internal consistency.

Correlation Analysis: Pearson Correlation Coefficient for assessing the relationships between the variables.

Inferential Statistics: One Sample T-Test and independent T-Test for comparison

Data Visualization: Microsoft Excel generated charts and graphs.

Written permission will also be sought from the school directors of the school where the study will be conducted.



## 4. Data Analysis and Results

At all stages of the research, confidentiality and privacy will be strictly adhered to ensure the anonymity of the participants. De-identification of data will be kept for research purposes, and not revealed for any other use.

This study uses a correlational design where it explores the relationship between four different variables:

- 1- Entrepreneurship
- 2- The healthy environmental schools.
- 3- Creativity.
- 4- Identity.

The researcher, in using a correlational design seeks to find the relationship between the four variables, and how each variable affects the other one, or is affected by the other one.

### 4.1. Validity Test

The validity is measured to ensure that the tool measures the attribute or object for which it was designed, indicating: what you measure, how you manage to measure it, and the validity has been verified by calculating the correlations between each questionnaire's statements and their overall grade through Pearson correlations, as shown in table (4.1):

**Table 4: Correlation between statements and questionnaires.**

Questionnaire	No. Statements	Correlations
Questions directed to parents of students(n=283)	2	0.51**
	3	0.54**
	4	0.53**
	5	0.32**
Questions directed to the Entrepreneurs (n=57)	2	0.58**
	3	0.62**
	4	0.67**
	5	0.64**
	6	0.8**
	7	0.75**
Questions directed to school staff (n=119)	2	0.63**
	3	0.7**
	4	0.47**
	5	0.36**
	6	0.38**
	7	0.48**
	8	0.5**

\* Significant level at 0.05

\*\* Significant level at 0.01

Source: Prepared by the researcher according to statistical analysis outputs using SPSS

Pearson coefficient values in the table (4) indicate a statistically significant correlation between statements and their questionnaire, so there is the validity of the questionnaires.

### 4.2 Reliability Test using Cronbach's alpha coefficient and Stability

The Cronbach's alpha coefficient was calculated for each questionnaire individually to measure stability, as the values of these factors belong to the correct area from zero to one, the closer the values of this coefficient to the one, the greater the credibility of the data. The stability is calculated by the square root of Cronbach's alpha, and the results are recorded in table 4.2:

**Table 5: Cronbach's alpha coefficient and Stability.**

Questionnaire	Cronbach's alpha	Stability
Questions directed to parents of students(n=283)	0.91	0.95
Questions directed to the Entrepreneurs (n=57)	0.81	0.9
Questions directed to school staff (n=119)	0.65	0.81

Source: Prepared by the researcher according to statistical analysis outputs using SPSS

Table (5) shows that the value of the Cronbach's alpha coefficient was high for the three questionnaires and ranged from 0.65-0.91, greater than 0.6, and for the stability, its value ranged from 0.81-0.95, and the reported confirmation of the stability of the questionnaires.

### 4.3. Sample properties

#### 4.3.1. Questions directed to parents of students

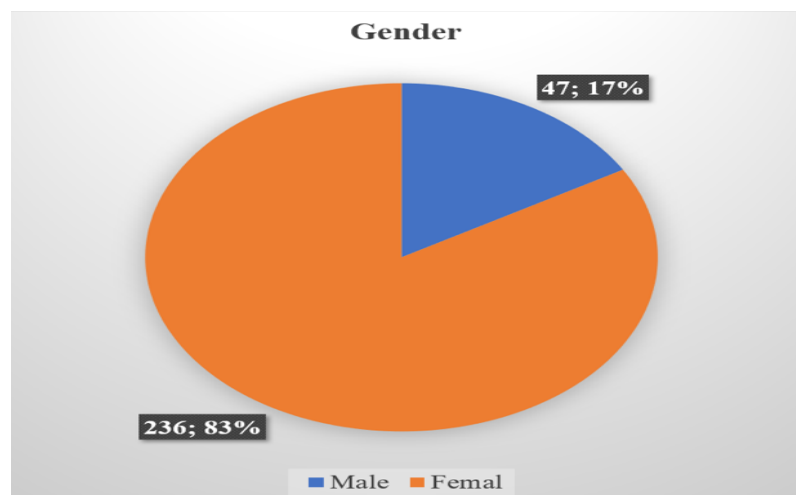
Table (6) shows the relative distribution of the 283 sample members in questions directed to parents of students depending on the following variables:

**Gender:** The number of males reached 47(16.6%), while the number of females was 236 (83.4%) (Fig 1).

**Table 6: Relative distribution of questions directed to parents of students.**

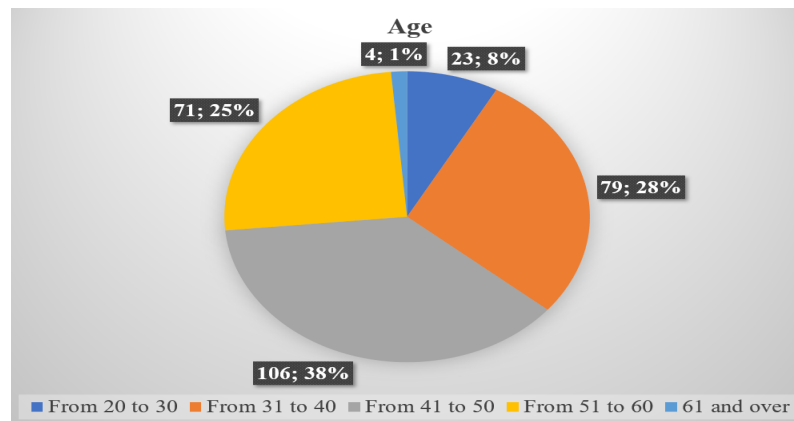
Variables		Count	Percentage
Gender	Male	47	16.6%
	Female	236	83.4%
	Total	283	100.0%
Age	20-30	23	8.1%
	31-40	79	27.9%
	41-50	106	37.5%
	51-60	71	25.1%
	61 and over	4	1.4%
	Total	283	100.0%
Education level	presecondary school	18	6.4%
	Secondary school	55	19.4%
	Diploma	39	13.8%
	Bachelor	136	48.1%
	Graduate level	35	12.4%
	Total	283	100.0%
Importance of a healthy environment	Not important	0	0.0%
	Important	26	9.2%
	Very important	257	90.8%
	Total	283	100.0%

**Source:** Prepared by the researcher according to statistical analysis outputs using SPSS



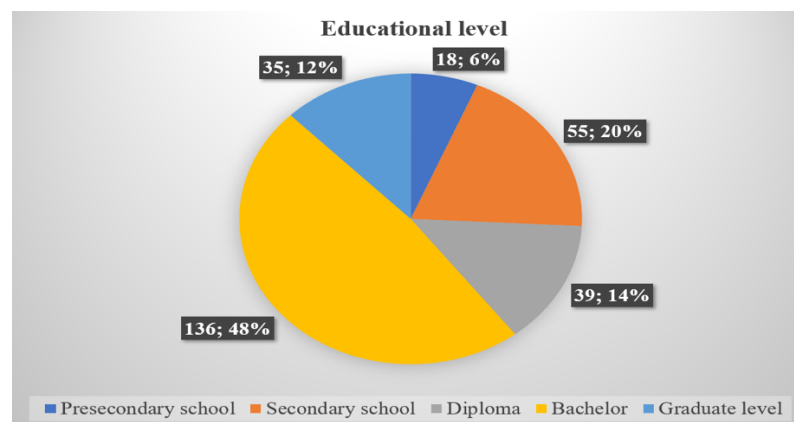
**Fig. 1:** Distribution of sample members by gender.

**Age:** The age group 41-50 recorded the highest number of individuals, reaching 106, at a rate of 37.5%, followed by the age group 31-40 with a rate of 27.9% (79), and the lowest age group was for the group 61 and over, which recorded a percentage of 1.4% (4) (Fig 2).



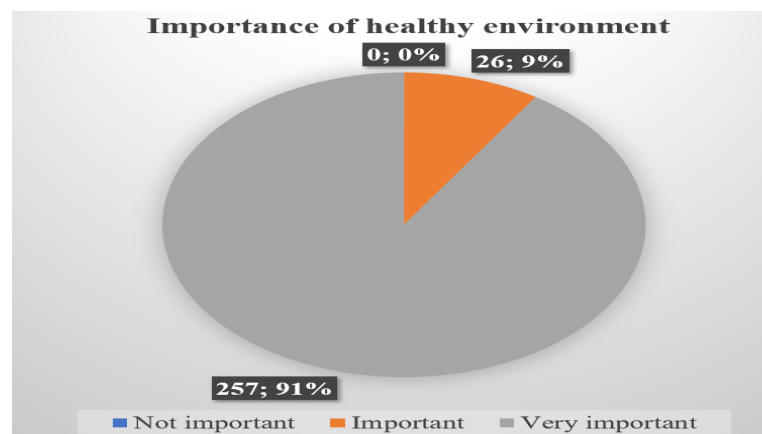
**Fig. 2:** Distribution of sample members by age.

**Educational level:** The highest number of sample members was among the university graduates 136, at a rate of 48.1%, and the lowest was among the pre-secondary of 18, at a rate of 6.4% (Fig. 3).



**Fig. 3:** Distribution of sample members by education level.

**The importance of a healthy environment in the school:** It was very important for most of sample 257 with a percentage of 90.8%, and important for 26 individuals with a percentage of 9.2% (Fig. 4).



**Fig. 4:** Distribution of sample members by the importance of a healthy environment.

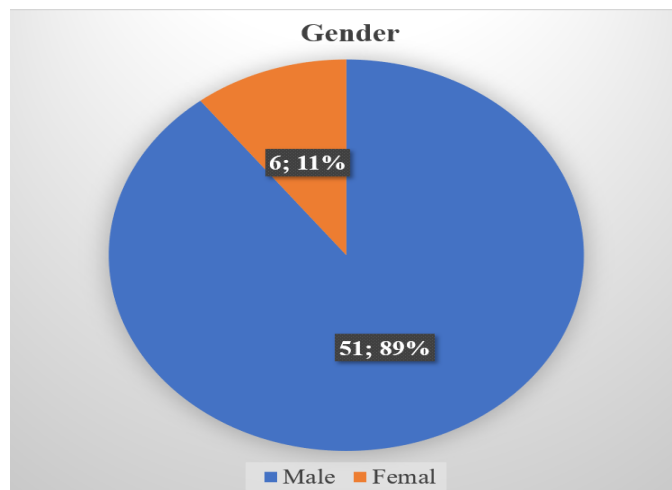
#### 4.3.2. Questions directed to entrepreneurs

Table (7) shows the relative distribution of the sample members, which numbered 57, in the questions directed to the entrepreneurs according to the gender variable. The number of males reached 51 individuals (89.5%), and the females numbered 6 (10.5%) (Fig 5).

**Table 7: Relative distribution of questions directed to entrepreneurs.**

Gender	Count	Percentage
Male	51	89.5%
Female	6	10.5%
Total	57	100.0%

**Source:** Prepared by the researcher according to statistical analysis outputs using SPSS

**Fig. 5:** Distribution of sample members by gender.

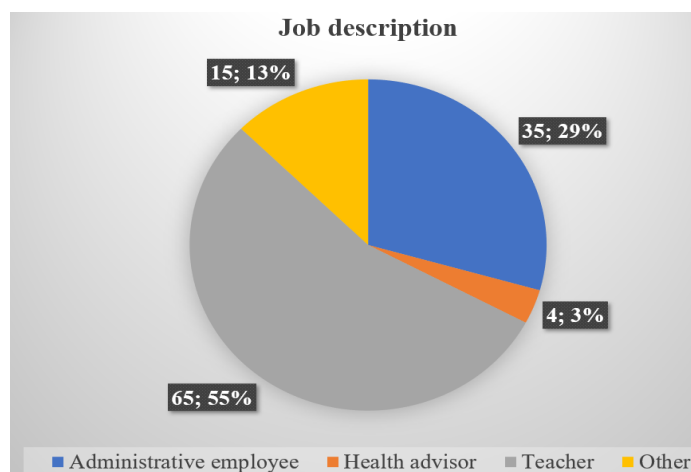
#### 4.3.3. Questions directed to school staff

Table (8) shows the relative distribution of the 119 sample members in the questions directed to school staff according to the job description variable, where the number of female teachers reached 65 by 54.6%, followed by the administrative employees, whose number reached 35 by 29.4%, and then "other" by 12.6%, and finally health advisor by 3.4% (Fig. 6).

**Table 8. Relative distribution of questions directed to school staff.**

Job description	Count	Percentage
Administrative employee	35	29.4%
Health advisor	4	3.4%
Teacher	65	54.6%
Other	15	12.6%
Total	119	100.0%

**Source:** Prepared by the researcher according to statistical analysis outputs using SPSS

**Fig. 6:** Distribution of sample members by job description.

#### 4.4. Descriptive statistics

In order to determine and know the extent to which respondents agree with the statement of each questionnaire, we should calculate the means and standard deviation for each statement according to each questionnaire, and the results were as follows:

##### 4.4.1. Questions directed to parents of students

Table (9) shows that the general arithmetic means of the questions directed to parents of students was 3.84 with a standard deviation of 0.55. This means that the questions directed to parents of students are clear.

Based on the table (9), the study sample of the students' parents are strongly agreed that the school's healthy and safe environment depends on their registration because they ranked first in importance with an arithmetic means of 4.48 and a standard deviation of 0.77, and they also agree strongly on the impact of the unhealthy environment of the school on their ability to learn and cognition, they ranked second with an arithmetic means of 4.4 and a standard deviation of 0.83, but they did not agree to register them in a school with an unhealthy and safe environment, where they ranked fourth with an arithmetic means of 2.02 and a standard deviation of 1.18.

**Table 9: Arithmetic means and standard deviations of questions directed to parents of students.**

No.	Statements	Means	Standard deviations	By Likert scale	Arrange statements
2	My choice to enroll my daughter in a public school depends primarily on a healthy and safe environment.	4.48	.770	Strongly agree	1
3	The unhealthy environment at school affects my daughter's ability to learn and perceive.	4.4	.830	Strongly agree	2
4	I will have to transfer my daughter to one of the private and international schools if she does not get a healthy and safe environment in her public school.	3.94	1.01	Agree	3
5	I can register my daughter in a school that has a poor healthy and safe environment.	2.02	1.18	Disagree	4
<b>Total</b>		<b>3.84</b>	<b>0.55</b>	<b>Agree</b>	

**Source:** Prepared by the researcher according to statistical analysis outputs using SPSS

##### 4.4.2. Questions directed to the Entrepreneurs

Table (10) shows that the general arithmetic means of the questions directed to the entrepreneurs was 3.4 with a standard deviation of 0.78. This means that the questions directed to the entrepreneurs are clear. Based on table (10), the study sample of those responsible for entrepreneurs agreed that there is a direct method for receiving complaints about maintenance and cleaning from schools, as it ranked first in importance with an arithmetic means of 4 and a standard deviation of 1.16, and they also agreed on the need for rapid response and the seriousness of complaints, as it ranked second with a means of 3.79 and a standard deviation of 1.03, and the officials agreed that their institutions meet the needs of the school in the best way, with a means of 3.47 and a standard deviation of 0.93, on the other hand, the opinion of those responsible for the availability of a healthy environment in schools was neutral about the adequacy of the tools provided by their companies for the school, its quality, and the budget provided to them to employ a sufficient number of workers with a means of 3.12, 3.05, and 2.74 and standard deviations of 1.21, 1.2, and 1.19, respectively.

**Table 10. Arithmetic means and standard deviations of questions directed to entrepreneurs**

No.	Statements	Means	Standard deviations	By Likert scale	Arrange statements
2	There is a direct way with the schools to receive complaints about maintenance, air conditioning and cleaning	4	1.16	Agree	1
3	School complaints are dealt with seriously and quickly response	3.79	1.03	Agree	2
4	You find that the hygiene tools that the company provides to schools are sufficient until the end of the month to do all matters of hygiene and sterilization, especially after the Corona pandemic and strict health measures	3.12	1.21	Neutral	4



5	you find the budget presented to the schools to give a certain number of cleaning workers sufficient to run the school and all its facilities to the fullest extent	2.74	1.19	Neutral	6
6	The quality of these hygiene tools really to clean the school and sanitize it to the required level	3.05	1.20	Neutral	5
7	As an entrepreneur, you find that your organization meets all the needs of the school building in terms of maintenance, air conditioning and cleanliness to the fullest extent.	3.47	.930	Agree	3
<b>Total</b>		<b>3.4</b>	<b>0.78</b>	<b>Agree</b>	

**Source:** Prepared by the researcher according to statistical analysis outputs using SPSS

#### 4.4.3. Questions directed to school staff

Table (11) shows that the general arithmetic means of the questions directed to school staff was 4.26 with a standard deviation of 0.57. This means that the questions directed to school staff are very clear. Based on table (11), the study sample of school staff agreed very much on all of their questionnaire questions with the exception of the question about the availability of cleaning materials, sterilization, and pesticides in a destructive manner to keep the school healthy and safe, as it ranked last with an average of 3.6 and a standard deviation of 1.14. The performance of female and male students was negatively affected by maintenance and cleaning problems, in the first place in importance, with a means of 4.57 and a standard deviation of 0.68

**Table 11. Arithmetic means and standard deviations of questions directed to school staff.**

No.	Statements	Means	Standard deviations	By Likert scale	Arrange statements
2	A healthy and safe environment in the school encourages student's participating in different activities	4.21	.850	Strongly agree	5
3	You can enhance student's creativity when you organize different activities being held in a safe and healthy environment.	4.34	.750	Strongly agree	3
4	An unhealthy and unsafe environment excludes students to participate in the school's events and activities.	4.29	.840	Strongly agree	4
5	Some maintenance and cleaning problems at school caused the absence of students.	4.08	.970	Agree	6
6	The company provides the cleaning and sterilization materials, insect sprays, and periodic maintenance work to maintain a healthy and safe building.	3.6	1.14	Agree	7
7	The healthy environment affects the employee's performance.	4.56	.660	Strongly agree	2
8	The employee's and student's performance are affected negatively by the maintenance and cleaning problems like out-of-service air conditions or lights.	4.57	0.68	Strongly agree	1
<b>Total</b>		<b>4.26</b>	<b>0.57</b>	<b>Strongly agree</b>	

**Source:** Prepared by the researcher according to statistical analysis outputs using SPSS

#### 4.5. Regression analysis

To prove the truth of this hypothesis, a one-sample t-test was used to examine whether the means of a questionnaire is statistically different from a known or hypothesized value, which know as a test value. A test value equals 3 when using a five-point Likert scale.

The test statistic for a One-Sample t-Test is denoted  $t$ , which is calculated using the following formula:

$$t = \frac{\bar{x} - \mu_0}{s_{\bar{x}}}$$

where

$$s_{\bar{x}} = \frac{s}{\sqrt{n}}$$

Where;

$\mu_0$  = The test value -- the proposed constant for the population means

$\bar{x}$  = Sample means

n = Sample size (i.e., number of observations)

s = Sample standard deviation

$s_{\bar{x}}$  = Estimated standard error of the means ( $s/\sqrt{n}$ )

**Two sections (boxes) appear in the output:**

**One-Sample Statistics:** provides basic information about the selected variable, including the valid (nonmissing) sample size (n), means, standard deviation, and standard error.

**One-Sample Test:** displays the results most relevant to the One-Sample t-Test, as follows:

- **Test Value:** The number we entered as the test value in the One-Sample T-Test window.
- **t Statistic:** The test statistic of the one-sample t-test, denoted t.
- **df:** The degrees of freedom for the test. For a one-sample t-test,  $df = n - 1$
- **Significance (Two-Sided p):** The p-values corresponding to one of the possible two-sided alternative hypotheses.
- **Means Difference:** The difference between the "observed" sample means (from the One-Sample Statistics box) and the "expected" means (the specified test value (A)).
- **Confidence Interval for the Difference:** The confidence interval for the difference between the specified test value and the sample means.

#### 4.5.1. First main hypothesis

**H0:** There is no statistically significant effect of maintenance and cleaning work on the parents of female students in government girls' schools.

**H1:** There is a statistically significant effect of maintenance and hygiene work on the parents of female students in government girls' schools.

To prove the validity of this hypothesis, a one-sample t-test was used to reveal a significant difference in the means of the questions directed to parents of students from the fixed value (3), which is the average value of the five-point Likert scale used.

**Table 12:** One sample t-test for answers to questions directed to parents of students.

One-Sample Statistics	N	Means	Std. Deviation	Std. Error Means		
Questions directed to parents of students	283	3.8445	.54953	.03267		
One-Sample Test	Test Value = 3					
	t	Df	Sig. (2-tailed)	Means Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Questions directed to parents of students	25.853	282	.000	.84452	.7802	.9088

**Source:** Statistical analysis outputs using SPSS program by the researcher.

Table (12) shows that the arithmetic means of the questions directed to parents of students to the parents is (3.84), and in comparison, with the assumed average (3), it finds that the answers of the parents tend to be positive towards agreeing. The value of t at the freedom degree of 282 is (25,853) and the significant value is (0.000) which is less than (0.05), therefore the null hypothesis H0 which says "There is no statistically significant effect of maintenance and cleaning work on the parents of female students in government girls' schools" is not accepted, and the alternative hypothesis H1 which says "There is a statistically significant effect of maintenance and cleaning work on the parents of female students in government girls' schools" is accepted.

#### 4.5.2. Second main hypothesis

**H0:** There is no statistically significant effect on how the healthy educational environment contributes to the creativity of Saudi female students.

**H1:** There is a statistically significant effect on how the healthy educational environment contributes to the creativity of Saudi female students.

To prove the validity of this hypothesis, a one-sample t-test was used to reveal a significant difference in the means of the questions directed to entrepreneurs from the fixed value (3), which is the average value of the five-point Likert scale used.

**Table 13:** One sample t-test for answers to questions directed to entrepreneurs.

Table 15: One sample t test for answers to questions directed to entrepreneurs.						
One-Sample Statistics	N		Mean	Std. Deviation	Std. Error Mean	
Questions directed to entrepreneurs	57		3.4035	.77597	.10278	
One-Sample Test	Test Value = 3					
	T	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Questions directed to entrepreneurs	3.926	56	.000	.40351	.1976	.6094

**Source:** Statistical analysis outputs using SPSS program by the researcher.

Table (13) shows that the arithmetic means of the questions directed to entrepreneurs is (3.4), and in comparison, with the assumed average (3), IT find that the answers of entrepreneurs tend to be positive towards agree. The value of t at the freedom degree of 56 is (3.926) and the significant value is (0.000) which is less than (0.05), and therefore the null hypothesis H0 which says "There is no statistically significant effect on how the healthy educational environment contributes to the creativity of Saudi female students" is not accepted, and the alternative hypothesis H1 which says "There is a statistically significant effect on how the healthy educational environment contributes to the creativity of Saudi female students" is accepted.

#### 4.5.3. Third main hypothesis

**H0:** There is no statistically significant effect on how creativity enhances the identity of the Saudi student.

**H1:** There is a statistically significant effect on how creativity enhances the identity of the Saudi student.

To prove the validity of this hypothesis, a one-sample t-test was used to reveal a significant difference in the mean of the questions directed to school staff from the fixed value (3), which is the average value of the five-point Likert scale used.

**Table 14.** One sample t-test for answers to questions directed to school staff.

One-Sample Statistics				N	Mean	Std. Deviation	Std. Error Mean
Female staff answers in governmental schools				119	4.2605	.57434	.05265
One-Sample Test	Test Value = 3						
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference		
					Lower	Upper	
Female staff answers in governmental schools	23.941	118	.000	1.26050	1.1562	1.3648	

**Source:** Statistical analysis outputs using SPSS program by the researcher.

Table (14) shows that the arithmetic means of the questions directed to school staff is equal to (4.26), and in comparison, with the assumed average (3), It find that the answers of school staff tend to be positive towards agreeing. The t-value at the freedom degree of 118 is (23.94) and the significant value is (0.000) which is less than (0.05), and therefore the null hypothesis H0 which says "There is no statistically significant effect on how creativity enhances the identity of the Saudi student" is not accepted. The alternative hypothesis H1 which says " There is a statistically significant effect on how creativity enhances the identity of the Saudi student " is accepted.

## 5. Study Results and Discussion

Based on the statistical tests and analysis of the historical data, we present key findings as follows:

First; Pearson's correlation coefficients were computed to confirm the validity of the research instruments for their respective constructs. As can be seen from the data in Table 4, statistical significance ( $p < 0.05$ ) was found for each item with its respective questionnaire, supporting the asserted validity for the received measurement tools. Second; Cronbach's alpha coefficient was used to assess the reliability of the questionnaires. All participant groups shown considerable redundancy (that is, the coefficient values were higher than the suggested 0.6) according to the appropriate accepted threshold. In particular, the reliability scores

for parents, entrepreneurs, and school staff range from 0.65 to 0.91, and the stability values range from 0.81 to 0.95. These findings highlight that the research instruments show high internal consistency and stability. Third; The analysis found that the questions on the survey were understandable to all of the participant segments. The mean scores of the responses of the parents, entrepreneurs and school staff were found to be 3.84 (SD = 0.55), 3.4 (SD = 0.78) and 4.26 (SD = 0.57), respectively. The maintenance and cleaning services in schools are seen as the main factor in promoting a healthy environment. Fourth; In government girls' schools, a one-sample t-test was performed to evaluate the statistical significance of maintenance and cleaning services on parental perceptions. The analysis found that the average score for parents (3.84) was bigger than the assumed average (3) (Table 12), which means that parents see that maintenance and cleaning plays an important role in improvement of school conditions. Fifth; Moreover, the study aimed to explore the correlation between healthy school environment and creative potential of Saudi students. Because the mean score for entrepreneurs' responses was higher than the assumed average (3), the one-sample t-test yielded statistically significant results (Table 13) These results indicate that entrepreneurs are consistently confident that a well-maintained educational atmosphere is crucial to stimulating student creativity. Sixth; The results of the data analysis showed a statistically significant effect on how creativity enhances the identity of Saudi students by using a one-samples t-test, that because the arithmetic means of the questions directed to school staff is bigger than the assumed average (3) (Table 14), that showed the answers of the questions directed to school staff tend to be positive towards agreeing.

## 6. Recommendation of the Study

First; Further research should be conducted in other areas of the Kingdom of Saudi Arabia for a better representation of the relationship between school maintenance and student development. Second; One way of doing this is through enhanced funding for top maintenance and cleaning businesses that provide high-level services as factors of reproduction of a health and safety laid out by the education policies. Third; In future studies, students should be involved through either questionnaires or other input methods, as their feedback would provide a more comprehensive picture of school maintenance and cleanliness from their point of view. Fourth; With the deep disruptions brought on by COVID-19, future inquiries should investigate its potential impact on school maintenance habits and corresponding consequences for the educational experience. Fifth; When selecting good-quality cleaning and welfare materials, entrepreneurs should keep in mind, these cost-effective methods can help minimize the number of maintenance calls, resulting in a more pleasant experience for both students and the institution. Sixth; To reduce the potential for price fluctuations and service delays to have an impact, schools should ensure an appropriate supply of cleaning materials and maintenance resources is secured at the start of any given academic year. Seventh; Future studies should explore the relation of distinguished Saudi female entrepreneurs and their contribution in maintaining schools and enhancing environment. Eighth; Further research on the relationship between an effective school environment and academic achievement in girls' schools throughout Saudi Arabia is recommended. Focusing on these recommendations will enable cooperation between policymakers, school administrators and entrepreneurs to promote general learning environment enhancement and develop the core aspects of creativity and identity in students.

## References

- [1] Al-Buqami, S., & Al-Alfy, A. (2018). The degree of application of the leaders of the schools of the governorate of soil to community partnership and its relationship to achieving an attractive school environment from the perspective of teachers, *Scientific Journal, Assiut University*, 34(5), 1401-1430.
- [2] Anna Craft (1997) Identity and creativity: educating teachers for postmodernism?, *Teacher Development*, 1:1, 83-96, 1747-5120 (Online) Journal homepage: <https://www.tandfonline.com/loi/rtde20>
- [3] Banks, James A., ed. *Encyclopedia of diversity in education*. Sage Publications, 2012.
- [4] Bassi, Merfat Mohammed Mahdi. "Enhancing the Role of Saudi Women in Community Development in Light of the Kingdom's 2030 Vision." *مجلة الفنون والأدب وعلوم الإنسانيات والاجتماع* 66 (2021): 426-441.
- [5] Bell, Duran. (2007). Identity and Social Innovation. Structure and Dynamics: e-Journal of Anthropological and Related Sciences. 2. 10.5070/SD923003291
- [6] Bennett, Dawn. (2012). A creative approach to exploring student identity. *The international journal of creativity & problem-solving*. 22. 27-41.
- [7] Fearon, James. (1999). What Is Identity (As We Now Use the Word)?
- [8] Frank, E. & Rosén, M. (2010). *On the Importance of a Safe School and Classroom Climate for Student Achievement in Reading Literacy*. In *The 4th IEA International Research Conference, Göteborg*
- [9] Frumkin, H., Geller, R. J., Rubin, I. L., & Nodvin, J. (Eds.). (2006). *Safe and healthy school environments*. Oxford University Press.

- [10] Hänninen, O., & Haverinen-Shaughnessy, U. (2015). *School environment: policies and current status*, Copenhagen: WHO Regional Office for Europe,
- [11] Harris R. (1998) Introduction To Creative Thinking. [www.vittualsalt.com](http://www.vittualsalt.com). Innovation and Goal – free Living –Stephen Shapiro. [HTTP"//www-24-27.innovation.com/innovationorcle.htm](http://www-24-27.innovation.com/innovationorcle.htm).
- [12] Jasiulewicz-Kaczmarek, M., & Drożyner, P. (2013). The role of maintenance in reducing the negative impact of a business on the environment. In *Sustainability appraisal: Quantitative methods and mathematical techniques for environmental performance evaluation* (pp. 141-166). Springer, Berlin, Heidelberg.
- [13] Leonidas A. Zampetakis, Manto Gotti, Constantine Andriopoulos, and Vassilis Moustakis. Creativity and entrepreneurial intention in young people. ENTREPRENEURSHIP AND INNOVATION Vol 12, No 3, 2011, pp 189–199 DOI: 10.5367/ijei.2011.0037
- [14] Obied, T. (2020). Role of School Administration in Providing an Attractive and Safe School Environment to Students under Vision 2030. *Propósitos y Representaciones*, 8 (SPE3), e748. Doi: <http://dx.doi.org/10.20511/pyr2020.v8nSPE3.748>
- [15] Pashiardis, G. (2000). *School climate in elementary and secondary schools: Views of Cypriot principals and teachers*. *International Journal of Educational Management*
- [16] Shetty, Sowjanya, and V. Hans. "Role of education in women empowerment and development: Issues and impact." *Role of Education in Women Empowerment and Development: Issues and Impact* (September 26, 2015) (2015).
- [17] Sullivan, G. P., Pugh, R., & Melendez, A. P. (2002). Operations and maintenance best practices--a guide to achieving operational efficiency (No. PNNL-13890). Pacific Northwest National Lab., Richland, WA (US).
- [18] "Unleashing KSA's Entrepreneurial Potential for Vision 2030." Arab News, 7 July 2018, [www.arabnews.com/node/1335021](http://www.arabnews.com/node/1335021). Accessed 9 Feb. 2022.
- [19] William H. Parrett and Kathleen M. Budge. (2012). Turning High-Poverty Schools into High-Performing Schools. On: <http://www.ascd.org/publications/books/109003.aspx>
- [20] [www.wattan.net](http://www.wattan.net)