EMPOWERING SAUDI YOUTH THROUGH EFFECTIVE VOCATIONAL TRAINING: ROLE OF INNOVATION AND ENTREPRENEURSHIP CULTURE

Muhammad Awais Bhatti[1]*, Mohammed Alshiha[2]
[1] Associate Professor, Department of Management, College of Business Administration, King Faisal University, Al-Ahsa 31982, Saudi Arabia
Email: mbhatti@kfu.edu.sa
[2] Lecturer, Department of Business Administration, College of Administrative and Financial Sciences, Saudi Electronic University, Riyadh, Saudi Arabia
Email: m.alshiha@seu.edu.sa

ABSTRACT: The discipline of training and development is witnessing a rapid increase in global recognition. Due to this rationale, numerous organizations allocate resources towards enhancing the skills and retaining the talent of their employees. The implementation of vocational training programs in the Kingdom of Saudi Arabia (KSA) has witnessed a notable rise, contributing to the enhancement of skills among the younger population. Companies endeavor to pursue progressive trajectories and optimize performance outcomes through the integration of entrepreneurship, continuous learning, and a culture of innovation. The current study has employed a quantitative research design to examine the subject of inquiry. To achieve this objective, surveys were distributed to employees working in the higher education sector in Saudi Arabia. The software programs utilized for data analysis were SPSS and AMOS. The researchers conducted structural equation modeling to assess the outcomes pertaining to the hypothesis. The findings revealed that the variable EC had a significant impact on the dependent variable VCE, while the variable INN also exerted an influence on VCE.In relation to the mediation analysis, it is observed that the mediating effect of EDP on the relationship between INN and VCE is not statistically significant. However, the mediating effect of EDP on the relationship between EC and VCE is found to be statistically significant. This study contributes novel perspectives and advantages to the existing body of literature and theoretical frameworks pertaining to employee training and development. Moreover, the educational sectors can derive benefits from the current study by gaining insights into the various advantageous aspects of fostering an innovative culture and providing training to their employees. This, in turn, has a direct impact on employee retention and engagement in their work.

Keywords: Entrepreneurship culture, innovation, training, entrepreneurial development program

1. Introduction

The global economy has undergone a noticeable transition towards an industry where knowledge and technology dominate. Therefore, there has been a surge in the need for a labour force that possesses technical expertise and practical skills (Lester, 2020; Mohamed et al., 2021; Svetsky et al., 2022). Consequently, vocational training programmes have acquired increased significance in the realm of education worldwide. (Samoliuk, Bilan, & Mishchuk, 2021; Sedov & Kashfrazyeva, 2022). Training programmes provide students with the opportunity to cultivate the requisite skills required for successful integration into the labour market and to make meaningful contributions to the economic and industrial sectors. Furthermore, these training programmes afford students the opportunity to acquire practical and employment-oriented skills throughout the duration of their academic programmes. Vocational training programmes are strategically developed to address the specific requirements of industries and serve as a means to bridge the divide between theoretical education and the practical demands of the industrial sector. (Doufexi & Pampouri, 2022; Kazakova, Kondratyev, & Kuznetsova, 2022; Samoliuk et al., 2021). In recent studies, scholars have discovered that vocational training plays a crucial role in mitigating the issue of youth unemployment by facilitating the enhancement of skills among the younger population (Achatz, Jahn, & Schels, 2022; Bratti et al., 2018; Pastore & Zimmermann, 2019). The higher education sector in Saudi Arabia is currently experiencing significant changes, and vocational training can be regarded as an essential and crucial element in promoting skill development within the workforce and facilitating the ongoing transformation. Furthermore, the integration of practical and technical knowledge within the higher education sector of the nation can be facilitated by implementing vocational training programmes aimed at nurturing and developing aspiring educators.

The Kingdom of Saudi Arabia exhibits a demographic characteristic of having a predominantly youthful population, which consequently leads to a growing need for proficient labour in various sectors (Aldossari, 2020; Alghamdi, 2023; Bakry, Khalifa, & Dabab, 2019). Despite the prevalence of a well-educated populace, there

exists a dearth of a labour force possessing practical proficiencies, resulting in the frequent employment of expatriates who possess the requisite technical and vocational aptitudes. Consequently, there is an increasing inclination within the nation towards periodic training programmes aimed at addressing economic and industrial demands. According to the Global Knowledge Index 2022, Saudi Arabia has emerged as the top-ranked country in the region in terms of technical and vocational programmes. The significance of these programmes is widely acknowledged as they play a crucial role in addressing the challenges posed by transformation and exploring potential opportunities (TVTC, 2023). However, further research is required to investigate the ways in which vocational training can be bolstered by the innovative and entrepreneurial culture prevalent in the nation. The primary objective of this study is to investigate the influence of innovation and entrepreneurial culture in the higher education sector of Saudi Arabia on the enhancement of skills among young Saudi citizens. This will be achieved by examining the effectiveness of vocational training programmes. To comprehensively understand the perspectives of young employees, the researcher employed the method of mediating perceptions pertaining to entrepreneurial development programmes. The objectives of the present study can thus be enumerated as follows.

- To explore the impact of innovative culture within the education sector on the effectiveness of vocational training in Saudi Arabia
- To explore the effectiveness of an entrepreneurial culture within the education sector on the effectiveness of vocational training in Saudi Arabia
- To examine how entrepreneurial development program perceptions of the Saudi young employees working within the education sector can mediate the impact of innovative and entrepreneurial culture specifically on the effectiveness of vocational training.
- The present study, in a theoretical sense, makes a contribution by enhancing comprehension of the relationship between innovativeness, entrepreneurship, and the effectiveness of vocational training. Additionally, this study will make a valuable contribution by shedding light on the influence of entrepreneurial development programmes on the skill and knowledge enhancement of the younger population. Such programmes facilitate practical exposure to innovative and entrepreneurial competencies within educational institutions, offer mentorship and assistance through connections with industry investors and leaders, and foster a comprehensive entrepreneurial and innovative mindset within a specific industry. Hence, in practical terms, the present study aims to identify strategies, such as entrepreneurial development programmes, that can effectively enhance vocational training by integrating innovation and fostering an entrepreneurial culture. This study has the potential to inform policymakers about the formulation of policies aimed at enhancing the skills and occasional advancement of Saudi young employees within the education sector of Saudi Arabia. The subsequent sections of this paper encompass a comprehensive examination of existing literature, a detailed description of the methodology employed, the presentation of findings, an in-depth discussion, and a conclusive summary of the study.

2. Literature Review

Conceptual framework and Theoretical Background

In contemporary society, it is imperative for nations to continually invest in the education and development of their youth through the provision of vocational training. This is due to the recognition that the young population represents a valuable asset to the economies of various countries. The present study focuses on the significance of vocational training for young individuals, as it is believed that equipping them with skills related to entrepreneurship and innovation in the business sector will contribute to their enhanced economic contributions (Mora et al., 2023). The research is grounded in the "National Transformation Programme (NTP)," which focuses on equipping the younger generation with the necessary skills and knowledge to excel in the future business landscape. This programme aims to cultivate their potential through straightforward and innovative strategies, ultimately positioning them as valuable contributors to the country's economy. (Thaha Abdullateef, Musa Alsheikh, & Khalifa Ibrahim Mohammed, 2023). This theory is grounded in four fundamental objectives: the enhancement of recruitment and training processes for the younger generation, the improvement of teaching methods and curriculum, the cultivation of creativity and innovation, and the development of core skills among young citizens. Furthermore, the underlying premise of this study revolves around the vocational education of the youth in Saudi Arabia, which is significantly impacted by the culture of innovation and entrepreneurship. In this context, the perceptions of Entrepreneurial Development Programmes (EDPs) serve as a mediating factor between the culture of entrepreneurship, innovation, and the vocational training of the younger generation.

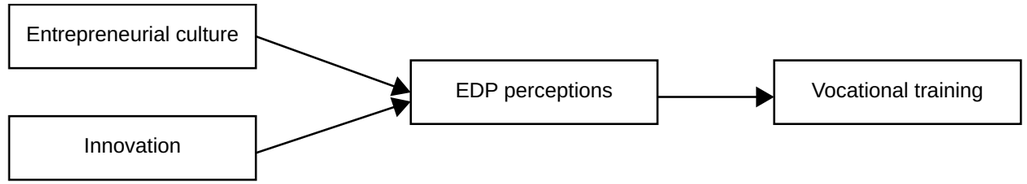

Figure 1: Conceptual Framework

Entrepreneurial culture and vocational training

The contemporary period is characterized by the confluence of employee performance factors, namely the motivation provided to employees in higher education institutions and their aptitude for functioning within an organizational context. These factors serve to stimulate employees to exert greater effort and dedication within an organizational setting (Soomro & Shah, 2019). Furthermore, this phenomenon contributes to the cultivation of employee motivation and the generation of innovative ideas pertaining to the advancement of a specific organization. Consequently, this process ultimately leads to the improvement of organizational outcomes (Farooq, Shams, & Niazi, 2015). Moreover, the inclination of employees towards their respective workplaces fosters the development of an entrepreneurial culture within both organizations and higher educational institutions. However, further research is required regarding the entrepreneurial culture and vocational training within higher education institutions for young individuals. In contemporary times, the inclusion of entrepreneurship in the vocational training programmes for employees within higher educational institutions has become a crucial aspect of societal development. This is primarily due to its significant contribution towards stimulating economic growth in diverse nations (Badri & Hachicha, 2019). In addition, the presence of an entrepreneurial culture exerts a substantial impact on the vocational education of young individuals, enhancing its efficacy in equipping them to contribute to their respective economies. Moreover, it fosters the cultivation of creativity and the ability to take calculated risks among the younger generation across various nations Maresch et al. (2016). Hence, this study concentrates on the significance of cultivating an entrepreneurial culture within higher educational institutions to facilitate the generation of novel and informative ideas, particularly aimed at the younger generation. Moreover, the concept of entrepreneurship also emphasises the provision of effective and efficient vocational training, asserting that the entrepreneurial culture significantly influences the vocational training of young individuals across various nations. It is imperative for diverse nations to actively encourage the adoption of entrepreneurship as a means to facilitate effective vocational training for their workforce.

H1: Entrepreneurial culture imposes a significant impact on the vocational training of the employees.

Innovation and Vocational training

In recent years, there has been a concerted effort within the academic community to introduce innovative approaches to both institutional operations and the professional practises of employees in higher education. This endeavour aims to effectively address the challenges and opportunities associated with globalisation, technology, and work practises on a global scale Khan et al. (2020). Furthermore, the implementation of workplace amendments will enable employees to deliver efficient vocational training to the youth population in their respective nations. This will also contribute to the promotion of a sustainable economy across various countries (ABBAS, 2017).

Innovative work behaviour is a dynamic phenomenon that involves introducing modifications or adjustments to the established work processes in order to improve organisational outcomes (Çobanoğlu, 2021). Within an organisational context, innovation encompasses four key elements: identifying workplace issues, conceptualising solutions for these issues, promoting the implementation of these solutions, and acknowledging the contributions made in this regard. Moreover, it is imperative that these attributes of innovation be initially implemented within the leadership of any organisation. This transformational leadership approach will subsequently prove advantageous for various sectors in delivering efficient vocational training to their respective employees. However, it is imperative for researchers to undertake studies pertaining to the advancements required in higher educational institutions. This is because implementing changes in these institutions will enhance the efficacy and comprehensibility of vocational training for employees, thereby facilitating the effective training of the younger generation across different nations. Therefore, the present study places emphasis on the vocational training

of young individuals in Saudi Arabia. The rationale behind this focus lies in the potential economic benefits that effective training can yield for a nation, particularly in terms of fostering economic growth. However, it is crucial to note that the effectiveness of such vocational training is contingent upon the innovative contributions made by employees within higher education institutions.

H2: Innovation in the HEIs significantly influences the effectiveness of the vocational training provided to Saudi Youth.

Mediating role of EDP perceptions

The incorporation of entrepreneurship within higher education institutions instills self-assurance among students, enabling them to embrace risk-taking and cultivate prosperous futures across diverse domains. Moreover, this phenomenon serves as a catalyst for economic growth within their respective nations. The perception surrounding entrepreneurial development programmes is frequently divergent from the actuality. However, it is important to note that the perception of entrepreneurial development programmes can potentially serve as a connecting factor in the correlation between entrepreneurial culture and the efficacy of vocational training for young individuals, as well as the relationship between innovation and the efficacy of vocational training for young individuals. (Martins, Perez, & Novoa, 2022). Recent research conducted by Hassan et al. (2022) has identified a correlation between the perception of entrepreneurial development programmes and the organisational culture. The study suggests that a direct relationship between these variables cannot be conclusively established based on the findings. However, an indirect relationship between the variables is observed. The present research study centres on the establishment of an entrepreneurship development programme as an intermediary factor between entrepreneurship culture, innovation, and the efficacy of vocational training offered to the younger population. Hence, it is imperative for Higher Education Institutions (HEIs) to actively endorse an entrepreneurship development programme aimed at students within the nation (Kruger & Steyn, 2020). The perceptions surrounding the EDP program suggest that employees should receive comprehensive vocational training to minimize job-related challenges upon completion of their bachelor's degree. Additionally, there is an emphasis on encouraging young individuals to take risks and pursue entrepreneurship, as this fosters a desire for self-employment among young citizens. Such a shift towards self-employment is believed to contribute to the economic strength and sustainability of the country (Barba-Sánchez, Mitre-Aranda, & del Brío-González, 2022). The current research examines the perceptions of the younger generation regarding entrepreneurship and their willingness to acquire knowledge in this domain. However, it is also noted that as time progresses, technological advancements are occurring, and there is a potential for innovation and these programmes to become indirectly interconnected. Various research studies have been undertaken to examine the intermediary function of entrepreneurial development programmes in the correlation between entrepreneurial culture and the efficacy of vocational training for young individuals. However, there is a limited body of research that explores or analyses the intermediary function of entrepreneurial development programmes in the correlation between innovation and the efficacy of vocational training for young individuals.

H3: Entrepreneurial development programs significantly mediates the relationship between the entrepreneurial culture and effectiveness of vocational training of young Saudi citizens.

H4: Entrepreneurial development programs significantly mediates the relationship between innovation and effectiveness of vocational training of young Saudi citizens.

3. Methods

Quantitative study

The researcher opted to use a quantitative research methodology in the present investigation. According to UTA (2023), the use of quantitative methods is prevalent in the field of social sciences as it offers a standardized approach for researchers to conduct their studies. This method serves as a framework for our research and facilitates the collection of data in numerical format.

Data Collection tool and techniques

The researcher has formulated a theoretical framework in order to investigate the current phenomenon. Based on the underlying theoretical framework, the researcher formulated a hypothesis, which was subsequently examined through the analysis of both the model and the data gathered, utilizing statistical software and methodologies. In order to gather data, a survey questionnaire instrument was created using Google Forms. This facilitated the administration of an online self-administered survey, which was divided into two sections. The first section focused on gathering information about the demographic characteristics of the participants, while the second section consisted of questions pertaining to the variables under investigation. The data in this study was obtained from a sample of 330 participants.

Target population

The primary objective of this research pertains to individuals employed within the higher education sector in Saudi Arabia. The chosen target population for this study is deemed suitable due to its alignment with the research objective of analyzing the enhancement of vocational training for young Saudi citizens, specifically focusing on upskilling, innovation, and entrepreneurship culture. Furthermore, the researcher opted for individuals as the unit of analysis, as the objective was to gather data from individual employees in order to obtain their unique perspectives on the underlying subject matter. The researcher employed the convenient sampling method to gather the data, ensuring that the research participants provided informed consent and willingly participated in the study.

Time Horizon of the study

According to the research onion model proposed by Saunders et al. (2015), the temporal dimension of a research study can be classified into two distinct types, namely cross-sectional study and longitudinal study. The current study employs a cross-sectional time horizon, wherein data is collected at a singular moment in time without interruptions or gaps in the data collection procedure. (Su et al., 2019).

Data Analysis

Since the data has been gathered in a numerical format, it is necessary to utilize statistical software for the purpose of analyzing the collected information. In this study, the software AMOS was employed for the purpose of data analysis. The theoretical model was tested using AMOS, and subsequent hypotheses were examined to determine their acceptance or rejection. Furthermore, numerous additional indispensable statistical tests were performed to analyze the data.

Measures

The study used a close-ended questionnaire, wherein each question consisted of five response options, ranging from a five-point scale. According to Lionello et al. (2021), the Likert scale is a measurement tool that assigns a range of values, with 5 representing "strongly disagree" and 1 representing "strongly agree." The measurement of innovation was conducted using a 4-item scale developed by Bolton (2012). The measurement of entrepreneurial culture was conducted using a 7-item scale that was adapted from the work of Khadhraoui et al. (2016). The vocational training programme utilised a 7-item scale that was adapted from the work of Hsu and Chen (2021). The entrepreneurial development programme was derived from a 5-item scale that was adapted from Meyer (2014) research. The specific information is provided in the appendix section.

4. Results

Demographic characteristics of respondents

Figures 2, 3, and 4 indicate the visual representation of the participant's demographic characteristics, specifically their age, education level, and gender. The data was gathered from individuals employed within the higher education industry. The demographic characteristics exhibited diverse outcomes corresponding to each specific characteristic. Figure 2 illustrates a higher proportion of male employees in comparison to female employees.

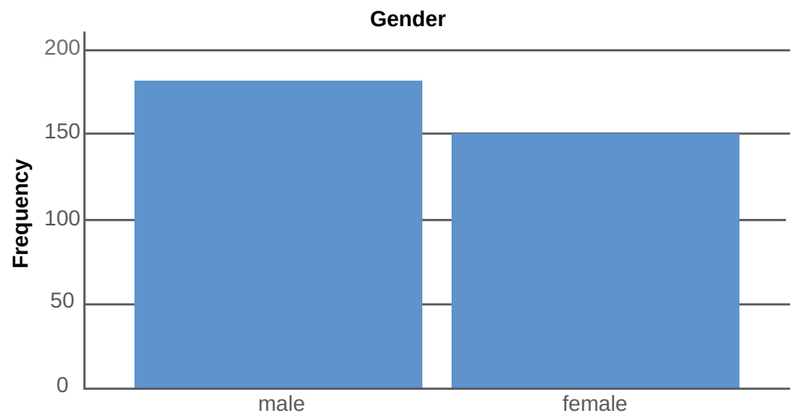

Figure 2: Gender of respondents

Figure 3 shows the educational background of the employed individuals. The majority of the employees possessed a Bachelor's degree, while a portion of them had completed their intermediate education and pursued a Master's degree. Figure 4 depicts the age distribution of the respondents, revealing that a majority of the participants fell within the age range of 26 to 30 years. Certain employees were younger than 25 years old, while others fell within the age range of 31 to 35 years. The age distribution of the employees can be observed in Figure 4, indicating a predominantly Saudi youths.

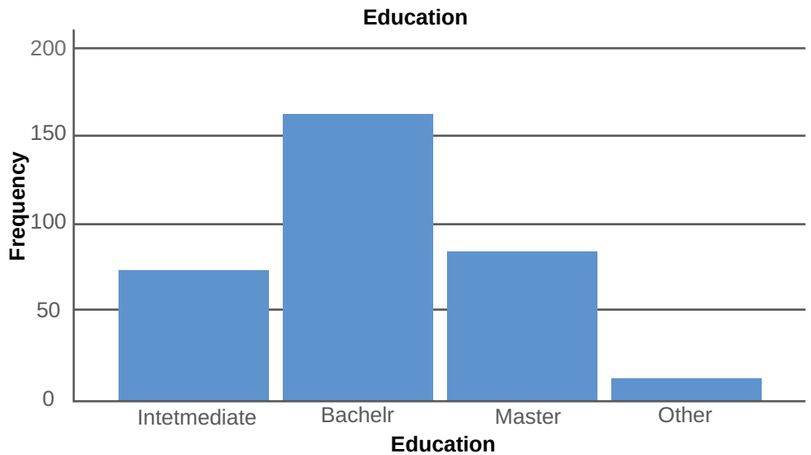

Figure 3: Education of respondents

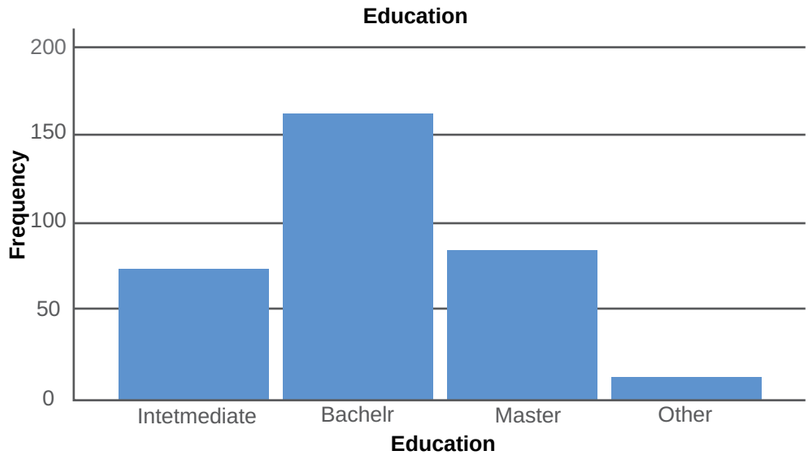

Figure 4: Age of respondents

Descriptive Summary

The findings of a descriptive summary of the data are presented in Table 4.1. This analysis is beneficial for assessing the normality of data and identifying outliers, among other factors. Moreover, this test can also provide information regarding any figures that may be missing from the data. Table 4.1 illustrates that for each variable, there were a total of 330 cases, indicating the absence of any missing values within the dataset. The range of the minimum and maximum statistics is from 1 to 5. The range of acceptable skewness values typically falls within the interval of -1 to +1. Given that each value represents conformity to acceptable criteria and there are no instances of extreme values, missing data, or inaccuracies evident in the dataset. Based on the analysis, it can be inferred that the data exhibited a normal distribution, with values evenly distributed.

Table 4.1. Descriptive of studied variables

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
EDP	330	4.00	1.00	5.00	3.2004	1.06263	-.314	.134
EC	330	4.00	1.00	5.00	3.2706	1.21844	-.231	.134
INN	330	4.00	1.00	5.00	2.8909	1.08939	.143	.134
VCE	330	4.00	1.00	5.00	3.5360	1.15674	-.467	.134
Valid N (listwise)	330							

EDP=Entrepreneurial development program, EC=Entrepreneurial culture, INN=Innovation, VCE=Vocational training,

KMO & Bartlett's test

The factor loading tests were conducted to verify the absence of an identity matrix in the provided dataset. Prior to that, a preliminary test was conducted to ensure the adequacy of the sample. The results of the KMO & Bartlett test are illustrated in Table 4.2. The findings indicate that the Bartlett test yielded a statistically significant result, with a p-value of .000. Furthermore, the adequacy of the sample can be confirmed by observing that the resulting value exceeds 0.7, specifically 0.954. According to projections, it is anticipated that factor loadings would produce statistically significant results.

Table 4.2. KMO & Bartlett test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		**.954**
Bartlett's Test of Sphericity	Approx. Chi-Square	16593.358
	Df	378
	Sig.	.000

Validity Analysis

The analysis of validity was conducted subsequent to ensuring the adequacy of the sample. The test served to demonstrate the presence of a statistically significant correlation between the variables under consideration. Convergent validity was assessed through the examination of composite reliability and average variance extracted. The threshold range for the construct reliability (CR) is 0.7, indicating that a CR value below this threshold may suggest inadequate reliability. Similarly, the threshold range for the average variance extracted (AVE) is 0.5, indicating that an AVE value below this threshold may indicate insufficient convergent validity. According to Table 4.3, both indicators exhibited resultant values that fell within the specified threshold ranges. The establishment of convergent validity has been observed. Discriminant validity was assessed in order to examine the absence of associations between constructs that are theoretically expected to be unrelated. The presence of values displayed in a diagonal bold format indicates that the data has successfully demonstrated discriminant validity. Given that both validity assessments have produced noteworthy findings, it can be inferred that the establishment of discriminant and convergent validity is expected.

Table 4.3. Discriminant and Convergent validity

	CR	AVE	MSV	MaxR(H)	ENC	VOCE	ENDP	INNO
ENC	0.996	0.970	0.585	0.998	**0.985**			
VOCE	0.971	0.787	0.297	0.975	0.545***	**0.887**		
ENDP	0.947	0.718	0.585	0.974	0.765***	0.542***	**0.847**	
INNO	0.821	0.574	0.253	1.002	0.208***	0.503***	0.167**	**0.758**

EDP=Entrepreneurial development program, EC=Entrepreneurial culture, INN=Innovation, VCE=Vocational training,

Confirmatory Factor analysis

Confirmatory factor analysis (CFA) was employed to assess and validate the adequacy of the model in relation to the provided data. The results for model fitness are presented in Table 4.4. The evaluation of CFA encompasses five key indicators, namely GFI, CFI, IFI, and RMSEA. The threshold values for each indicator exhibit variation. The findings presented in Table 4.4 indicate that the resulting values align with the acceptable range of values. The model is presumed to be suitable and satisfactory, as depicted in Figure 5.

Table 4.4. Model fitness

Indicators	Resultant values
CMIN/df	1.518
GFI	.907
IFI	.990
CFI	.990
RMSEA	.04

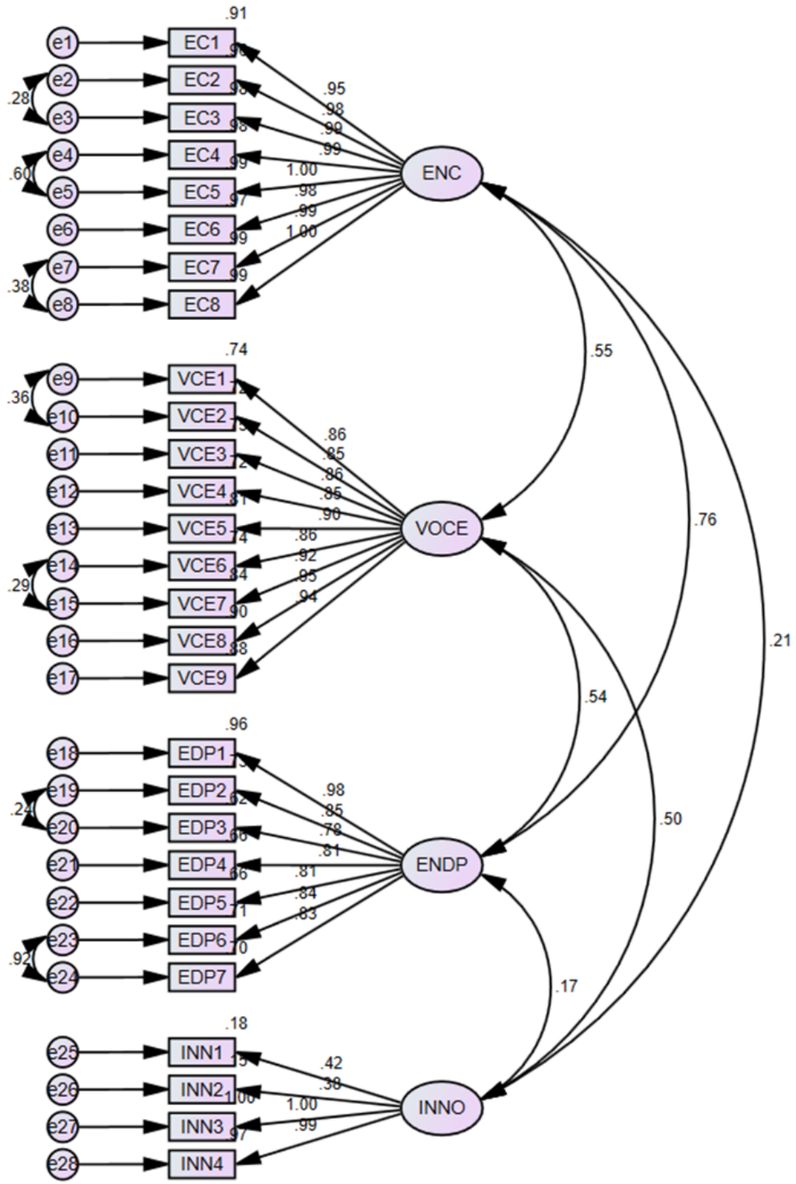

Figure 5: CFA

Structural Equation modeling

The application of structural equation modelling was utilised to examine the hypothesised relationships between variables. The findings presented in Table 4.5 indicate that there is a significant relationship between EC and VCE. Specifically, the results demonstrate that for every one-unit increase in EC, VCE increases by 0.247 units. This relationship is statistically significant, as evidenced by a p-value of 0.007. Therefore, the hypothesis has been validated. The significance of the second direct effect between INN and VCE is also noteworthy. The p-value for the relationship is 0.004, indicating statistical significance. Figure 6 demonstrates that a one-unit increase in INN has a significant effect on VCE, with an influence of 0.429 units.

Table 4.5. SEM results (Direct Effects)

Parameter			Estimate	Lower	Upper	P
VCE	<---	EC	.247	.157	.352	.007
VCE	<---	INN	.492	.433	.566	.004
EDP=Entrepreneurial development program, EC=Entrepreneurial culture, INN=Innovation, VCE=Vocational training,						

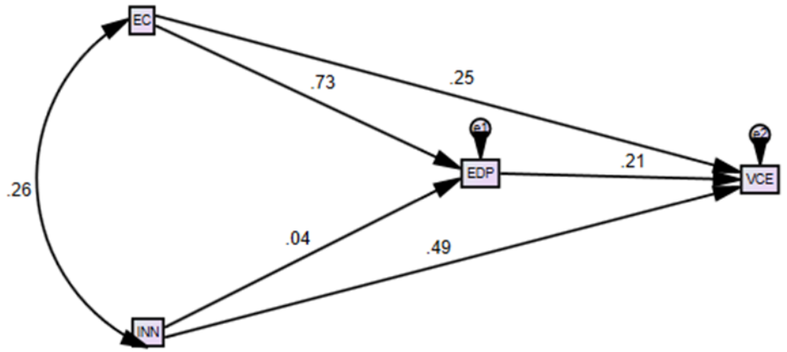

Figure 6: SEM

Table 4.6. SEM results (Indirect effects)

Indirect Path	Standardized Estimate	Lower	Upper	P-Value
INN-->EDP-->VCE	0.009	-0.003	0.031	0.214
EC-->EDP-->VCE	0.155***	0.074	0.228	0.001
EDP=Entrepreneurial development program, EC=Entrepreneurial culture, INN=Innovation, VCE=Vocational training,				

The findings of the mediating influence of EDP on the relationship between INN and VCE, as well as between EC and VCE, are presented in Table 4.6. The findings of the study indicate that the mediating effect of EDP on the relationship between INN and VCE is not statistically significant. Consequently, the hypothesis has been refuted. The statistical analysis reveals that the mediating effect of EDP in the relationship between EC and VCE is highly significant, as indicated by a p-value of 0.001. Consequently, the hypothesis has been deemed valid and accepted.

5. Discussion and Conclusion

The current research studied the impact of innovation and entrepreneurship culture on the upskilling of young Saudi citizens through effective vocational training. This research study aimed to investigate the relationship between various variables. The present study examined the correlation between entrepreneurial

culture and employee vocational training. The study also examined the correlation between innovation within higher education institutions (HEIs) and the vocational training offered to young individuals. The indirect relationships were also examined. This present research study aimed to investigate the mediating role of the perception of entrepreneurial development programs in two distinct relationships. Firstly, it explored the relationship between entrepreneurial culture and the effectiveness of vocational training for young citizens. Secondly, it examined the relationship between innovation and the effectiveness of vocational training for young citizens. The findings indicate that there is a noteworthy influence of entrepreneurial culture on the vocational training of young employees. The findings of the present study exhibited a resemblance to the research conducted by Soomro and Shah (2019). The purpose of this study was to examine the influence of organizational culture on various variables. According to the literature, culture can significantly contribute to the development of skills and performance among employees in an organization. The present study examines the impact of entrepreneurial culture on the improvement and augmentation of young employees' vocational training. The findings also indicate a noteworthy correlation between innovation and the efficacy of vocational training for young individuals, suggesting that innovation plays a substantial role in shaping the effectiveness of vocational training programs for this demographic. The findings of this investigation exhibited a resemblance to the scholarly inquiry conducted by Lund and Karlsen (2020). The research was undertaken to examine methods for improving vocational education. In this study, the researcher employed the use of innovation to examine the effects of innovation on vocational education. The findings also indicate that vocational education is imperative for employees and can be further improved through innovative approaches. Based on the research findings, it can be concluded that the perception of entrepreneurial development programmes plays a significant role in mediating the relationship between entrepreneurial culture and the vocational training of employees. The findings of this investigation bear resemblance to the research conducted by Adu et al. (2020). The purpose of this study was to examine the various factors that may moderate the association between entrepreneurial education and intention. This study investigated various factors and variables that serve as mediators between entrepreneurial education and intention. The inclusion of development programmes was identified as a significant factor in mediating the relationship between entrepreneurial education and intention. This study highlights the potential role of development programmes in moderating the association between entrepreneurial education and intention. The present study also examines the notion that the perception of entrepreneurial development programmes can serve as a crucial connection between entrepreneurial culture and vocational training for employees. This research study also investigated the mediating role of perception of entrepreneurial development programmes in the relationship between innovation and vocational training of young citizens, yielding insignificant results. Numerous scholarly investigations have examined the intermediary function of innovation within this particular context. However, there is a limited body of research that examines the minimal impact of perceptions of entrepreneurial development programmes as mediators. The findings of this investigation exhibited a certain degree of correlation with the research conducted by Hao, Chen, and Chen (2022). The primary objective of this research study was to investigate the potential correlation between innovation and entrepreneurial development. The findings of this study indicate a lack of significant correlation between innovation and the perception of entrepreneurial development programmes. The discussion also highlighted that there is limited influence of entrepreneurial development programmes on innovation perception.

6. Theoretical Implications

In order to promote the development of an entrepreneurial culture, it is imperative to establish an educational environment that promotes the generation of novel features and advantages, original socio-professional initiatives, valuable commodities, and groundbreaking services. Current studies examining the relationship between entrepreneurial development programmes and Effective Vocational Training reveal a lack of significant impact, despite the recognition of these programmes as crucial catalysts for fostering innovation and cultivating an entrepreneurial mindset. The primary objectives of entrepreneurial development programmes encompass the cultivation of entrepreneurial competencies, fostering an entrepreneurial mindset, and offering support to aspiring and emerging entrepreneurs. In contrast, vocational training programmes that are deemed effective prioritise the provision of specialised technical skills and knowledge that are specific to the respective fields of study. Specifically, the development of students' entrepreneurial mindsets has not been facilitated by means of entrepreneurship training. According to Ghina, Simatupang, and Gustomo (2017), there is a significant impact of quality entrepreneurship education on the inclination of vocational learners to pursue entrepreneurial endeavours.

The objective of this study is to investigate the correlation between entrepreneurial education programmes, entrepreneurial cultures, and the inclination of vocational students in Saudi Arabia to pursue entrepreneurship as a career path. This research examines the interrelationships between innovation, entrepreneurship culture, and the effectiveness of vocational training. By placing emphasis on the significance of vocational training in fostering an entrepreneurial mindset, the findings contribute to the existing body of research on entrepreneurship education.

7. Practical implications

The conclusions of this study have the potential to persuade policymakers regarding the importance of promoting practical vocational training initiatives that incorporate an entrepreneurial and innovative mindset. This document can function as a valuable resource for informing the development of policies and programmes aimed at bolstering the competencies of Saudi Arabia's youth population and aligning them with the demands of the national economy.

8. Limitations of the study and future directions

Regardless of making a significant contribution to the existing body of literature, this study exhibits several limitations that could be addressed in future research endeavors. The present study solely encompassed a specific subset of companies, with a geographical scope limited to those operating within the confines of Saudi Arabia. Additional investigation is warranted to examine larger sample sizes and encompasses international businesses in order to obtain more dependable findings. The administration should actively promote the development of an entrepreneurial culture among its citizens by incorporating entrepreneurship programs into the curricula of elementary, middle, and postsecondary education. These courses will provide residents with the opportunity to cultivate an entrepreneurial mindset and develop the requisite skills for generating employment opportunities. Individuals who have undergone entrepreneurial education and training possess the capacity for innovative thinking and are more likely to generate employment opportunities rather than actively seek employment. Furthermore, it is recommended that further investigation be conducted regarding the vocational training approaches employed in Saudi Arabia, as well as their effectiveness in promoting economic development and facilitating employment opportunities.

9. Acknowledgment

This work was supported by the Deanship of Scientific Research, Vice Presidency for Graduate Studies and Scientific Research, King Faisal University, Saudi Arabia [Grant 3935]'.

References

ABBAS, G. (2017). *Impacts of leadership styles on personal and job outcomes among teaching faculty of public sector universities.* INTERNATIONAL ISLAMIC UNIVERSITY ISLAMABAD, PAKISTAN. http://142.54.178.187:9060/xmlui/handle/123456789/5538

Achatz, J., Jahn, K., & Schels, B. (2022). On the non-standard routes: vocational training measures in the school-to-work transitions of lower-qualified youth in Germany. *Journal of Vocational Education & Training, 74*(2), 289-310. https://doi.org/10.1080/13636820.2020.1760335

Adu, I. N., Boakye, K. O., Suleman, A.-R., & Bingab, B. B. B. (2020). Exploring the factors that mediate the relationship between entrepreneurial education and entrepreneurial intentions among undergraduate students in Ghana. *Asia Pacific Journal of Innovation and Entrepreneurship, 14*(2), 215-228. https://doi.org/10.1108/APJIE-07-2019-0052

Aldossari, A. S. (2020). Vision 2030 and reducing the stigma of vocational and technical training among Saudi Arabian students. *Empirical Research in Vocational Education and Training, 12*(1), 1-24. https://doi.org/10.1186/s40461-020-00089-6

Alghamdi, A. A. (2023). Exploring early childhood teachers' beliefs about STEAM education in Saudi Arabia. *Early Childhood Education Journal, 51*(2), 247-256. https://doi.org/10.1007/s10643-021-01303-0

Badri, R., & Hachicha, N. (2019). Entrepreneurship education and its impact on students' intention to start up: A sample case study of students from two Tunisian universities. *The International Journal of Management Education, 17*(2), 182-190. https://doi.org/10.1016/j.ijme.2019.02.004

Bakry, D., Khalifa, R., & Dabab, M. (2019). The effectiveness of entrepreneurship programs to reduce unemployment in developing countries: The case of Saudi Arabia. In *2019 Portland International Conference on Management of Engineering and Technology (PICMET)* (pp. 1-8). IEEE. https://doi.org/10.23919/PICMET.2019.8893678

Barba-Sánchez, V., Mitre-Aranda, M., & del Brío-González, J. (2022). The entrepreneurial intention of university students: An environmental perspective. *European Research on Management and Business Economics, 28*(2), 100184. https://doi.org/10.1016/j.iedeen.2021.100184

Bolton, D. L. (2012). Individual entrepreneurial orientation: Further investigation of a measurement instrument. *Academy of entrepreneurship journal, 18*(1), 91. https://www.researchgate.net/profile/Havard-Asvoll/publication/272744551

Bratti, M., Ghirelli, C., Havari, E., Santangelo, G., Leikucs, J., & Strautmanis, N. (2018). *Vocational training and labour market outcomes. Evidence from Youth Guarantee in Latvia*. IZA Discussion Paper. https://core.ac.uk/download/pdf/162256916.pdf

Çobanoğlu, N. (2021). Transformational leadership job satisfaction's relationship with innovativeness in elementary schools. *Yaşadıkça Eğitim, 35*(2), 696-714. http://journals.iku.edu.tr/yed/index.php/yed/article/download/330/217

Doufexi, T., & Pampouri, A. (2022). Evaluation of employees' vocational training programmes and professional development: A case study in Greece. *Journal of Adult and Continuing Education, 28*(1), 49-72. https://doi.org/10.1177/1477971420979724

Farooq, S. U., Shams, M. S., & Niazi, M. M. (2015). Factors Affecting Employees' Performance: A Case of Kabul-Based Telecom Firms. *Business & Economic Review, 7*(2), 71-84. http://bereview.pk/index.php/BER/article/view/103

Ghina, A., Simatupang, T. M., & Gustomo, A. (2017). The relevancy of graduates' competencies to the effectiveness of entrepreneurship education: A case study at SBM ITB-Indonesia. *Journal of Entrepreneurship Education, 20*(1), 1-24. https://www.researchgate.net/publication/319478831_The_relevancy_of_graduates'_competencies_to_the_effectiveness_of_entrepreneurship_education_A_case_study_at_SBM_ITB-Indonesia

Hao, X., Chen, F., & Chen, Z. (2022). Does green innovation increase enterprise value? *Business strategy and the environment, 31*(3), 1232-1247. https://doi.org/10.1002/bse.2952

Hassan, A., Anwar, I., Saleem, A., Alalyani, W. R., & Saleem, I. (2022). Nexus between entrepreneurship education, motivations, and intention among Indian university students: the role of psychological and contextual factors. *Industry and Higher Education, 36*(5), 539-555. https://doi.org/10.1177/09504222211053262

Hsu, W., & Chen, P.-W. (2021). The influences of service quality and individual characteristics on vocational training effectiveness. *Sustainability, 13*(23), 13207. https://doi.org/10.3390/su132313207

Kazakova, U. A., Kondratyev, V. V., & Kuznetsova, M. N. (2022). Priorities of vocational training of educators of engineering universities in the formation of their psychological and pedagogical competency. *Mobility for Smart Cities and Regional Development-Challenges for Higher Education: Proceedings of the 24th International Conference on Interactive Collaborative Learning (ICL2021), Volume 2* (pp. 644-653). Springer. https://doi.org/10.1007/978-3-030-93907-6_69

Khadhraoui, M., Plaisent, M., Lakhal, L., & Bernard, P. (2016). The impact of entrepreneurial culture dimensions on entrepreneurial intention: A cross cultural study. *Universal Journal of Management, 4*(12), 685-693. https://doi.org/10.13189/ujm.2016.041205

Khan, M. A., Ismail, F. B., Hussain, A., & Alghazali, B. (2020). The interplay of leadership styles, innovative work behavior, organizational culture, and organizational citizenship behavior. *Sage Open, 10*(1), 2158244019898264. https://doi.org/10.1177/2158244019898264

Kruger, S., & Steyn, A. A. (2020). Enhancing technology transfer through entrepreneurial development: practices from innovation spaces. *The Journal of Technology Transfer, 45*(6), 1655-1689. https://doi.org/10.1007/s10961-019-09769-2

Lester, S. (2020). New technology and professional work. *Professions and Professionalism, 10*(2), 3836. https://doi.org/10.7577/pp.3836

Lionello, M., Aletta, F., Mitchell, A., & Kang, J. (2021). Introducing a method for intervals correction on multiple Likert scales: A case study on an urban soundscape data collection instrument. *Frontiers in psychology, 11*, 602831. https://doi.org/10.3389/fpsyg.2020.602831

Lund, H. B., & Karlsen, A. (2020). The importance of vocational education institutions in manufacturing regions: adding content to a broad definition of regional innovation systems. *Industry and Innovation, 27*(6), 660-679. https://doi.org/10.1080/13662716.2019.1616534

Maresch, D., Harms, R., Kailer, N., & Wimmer-Wurm, B. (2016). The impact of entrepreneurship education on the entrepreneurial intention of students in science and engineering versus business studies university programs. *Technological forecasting and social change, 104*, 172-179. https://doi.org/10.1016/j.techfore.2015.11.006

Martins, I., Perez, J. P., & Novoa, S. (2022). Developing orientation to achieve entrepreneurial intention: A pretest-post-test analysis of entrepreneurship education programs. *The International Journal of Management Education, 20*(2), 100593. https://doi.org/10.1016/j.ijme.2021.100593

Meyer, N. (2014). Creating an entrepreneurial culture among students through entrepreneurship development programmes (EDP). *Mediterranean Journal of Social Sciences, 5*(13), 281. https://www.mcser.org/journal/index.php/mjss/index

Mohamed, B. H., Ari, I., Al-Sada, M. b. S., & Koç, M. (2021). Strategizing human development for a country in transition from a resource-based to a knowledge-based economy. *Sustainability, 13*(24), 13750. https://doi.org/10.3390/su132413750

Mora, L., Gerli, P., Ardito, L., & Petruzzelli, A. M. (2023). Smart city governance from an innovation management perspective: Theoretical framing, review of current practices, and future research agenda. *Technovation, 123*, 102717. https://doi.org/10.1016/j.technovation.2023.102717

Pastore, F., & Zimmermann, K. F. (2019). Contributions to school-to-work transitions: vocational training, skill mismatch and policy. *International Journal of Manpower, 40*(8), 1361-1363. https://doi.org/10.1108/IJM-11-2019-420

Samoliuk, N., Bilan, Y., & Mishchuk, H. (2021). Vocational training costs and economic benefits: exploring the interactions. *Journal of Business Economics and Management, 22*(6), 1476-1491. https://doi.org/10.3846/jbem.2021.15571

Saunders, M. N., Lewis, P., Thornhill, A., & Bristow, A. (2015). Understanding research philosophy and approaches to theory development. http://catalogue.pearsoned.co.uk/educator/product/Research-Methods-for-Business-Students/9781292016627.page

Sedov, S., & Kashfrazyeva, G. (2022). Trends in the Development of Technological Education and Advanced Vocational Training of Students in the Context of Technological Education. *World Journal on Educational Technology: Current Issues, 14*(1), 200-216. https://doi.org/10.18844/wjet.v14i1.6718

Soomro, B. A., & Shah, N. (2019). Determining the impact of entrepreneurial orientation and organizational culture on job satisfaction, organizational commitment, and employee's performance. *South Asian Journal of Business Studies, 8*(3), 266-282. https://doi.org/10.1108/SAJBS-12-2018-0142

Su, Y., Flores, S., Wang, G., Hornbeck, R. C., Speidel, B., Joseph-Mathurin, N., Vlassenko, A. G., Gordon, B. A., Koeppe, R. A., & Klunk, W. E. (2019). Comparison of Pittsburgh compound B and florbetapir in cross-sectional and longitudinal studies. *Alzheimer's & Dementia: Diagnosis, Assessment & Disease Monitoring, 11*(1), 180-190. https://doi.org/10.1016/j.dadm.2018.12.008

Svetsky, S., Moravcik, O., Shyshkina, M., Cervenanska, Z., & Kotianova, J. (2022). The knowledge-based design of educational technology. In *Proceedings of the Future Technologies Conference (FTC) 2021, Volume 3* (pp. 759-775). Springer. https://doi.org/10.1007/978-3-030-89912-7_58

Thaha Abdullateef, S., Musa Alsheikh, R., & Khalifa Ibrahim Mohammed, B. (2023). Making Saudi vision 2030 a reality through educational transformation at the university level. *Labour and Industry*, 1-16. https://doi.org/10.1080/10301763.2023.2184166TVTC, T. a. V. T. C. (2023). *Saudi Arabia ranks first globally in Technical and Vocational Education and Training based on Global Knowledge Index 2022*. https://tvtc.gov.sa/en/MediaCenter/News/Pages/Saudi-Arabia-ranks-first-globally-in-Technical-and-Vocational-Education-and-Training-based-on-Global-Knowledge-Index-2022.aspx

UTA. (2023). *Quantitative and Qualitative Research*. https://libguides.uta.edu/quantitative_and_qualitative_research/quant

Appnedix

Variable Name	Items	Source
Innovation	1. I often like to try new and unusual activities that are not typical but not necessarily risky. 2. In general, I prefer a strong emphasis in projects on unique, one-of-a kind approaches, rather than revisiting tried and true approaches used before. 3. I prefer to try my unique way when learning new things rather than doing it like everyone else. 4. I favor experimentation and original approaches to problem solving rather than using methods others generally use for solving their problems.	(Bolton, 2012)
Entrepreneurial Culture	1. You value independence and autonomy. 2. You value personal initiative. You value willingness to take risks. 3. You consider that investing in your own start-up and managing it is a desirable career choice. 4. You consider that investing in your own start-up allows you to be free and independent. 5. You consider that investing in your own start-up allows you to realize your ideas. 6. You consider that investing in your own start-up enables you to improve your financial situation. 7. You consider that investing in your own start-up allows you to achieve success.	(Khadhraoui et al., 2016)
Vocational Training	1. I was very satisfied with the instruction in the class. 2. I was very satisfied with the course content. 3. Overall, I was very satisfied with the class. I learned a lot in this class. 4. I remember almost everything covered in the class. 5. I have applied the things covered into my work. 6. I use almost everything that was covered in my work. 7. I use the thing covered in this class almost every day	(Hsu & Chen, 2021)
Entrepreneurship Development Program	1. During completion of my degree, I obtained enough theoretical training to start my own business 2. During completion of my degree, I would have liked more practical assistance and guidance on how to start my own business 3. During completion of my degree, I would have liked additional training or workshops on how to successfully become an entrepreneur (business owner) 4. During completion of my degree, I would have liked to be part of an Entrepreneur Development Programme if it was presented on campus 5. The idea of starting my own business came from fear of not finding a job	(Meyer, 2014)

About Authors

Muhammad Awais Bhatti*
Associate Professor, Department of Management, College of Business Administration, King Faisal University, Al-Ahsa 31982, Saudi Arabia
Email: mbhatti@kfu.edu.sa

Mohammed Alshiha
Lecturer, Department of Business Administration, College of Administrative and Financial Sciences, Saudi Electronic University, Riyadh, Saudi Arabia
Email: m.alshiha@seu.edu.sa