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RESEARCH ARTICLE

A Proposed Vision for Developing Employability Skills among University of Tabuk Graduates in Light of the Fifth Industrial Revolution Requirements

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ABSTRACT

The study aimed to measure the availability of employability skills (technical skills, human skills, and continuous learning skills) among graduates of the University of Tabuk in light of the requirements of the Fifth Industrial Revolution. It analyzed the differences between these skills based on gender, specialization, and qualification level. It also offered a vision for developing these skills. The study employed the descriptive approach and utilized a questionnaire that encompassed a sample of 361 male and female graduates from the University of Tabuk. The study found that the availability of employability skills among graduates was generally 'high,' with human skills ranking first, followed by continuous learning skills, and finally, technical skills. The results showed statistically significant differences between the responses of males and females, as well as between practical specializations and bachelor's degree graduates. The study also provided recommendations for developing academic programs aligned with labor market requirements, as well as establishing a unit to develop employability skills in university colleges.

INTRODUCTION

Following the launch of Vision 2030, university education in the Kingdom of Saudi Arabia has witnessed numerous changes and developments across all fields creating intense competition among universities to keep pace with this change and achieve competitive positions locally and globally. This focus is placed on developing qualified human capital that meets the needs of the labor market and contributes to community service.

Universities are viewed as organizations of economic, social, political, and cultural value that contribute to the stability and development of society towards a sustainable future by building and transferring knowledge, preparing human capital equipped with skills such as critical thinking, creativity, digital literacy, and problem-solving, and preparing them for future challenges and opportunities (King & Mitchell, 2022: 77) .

In the Kingdom of Saudi Arabia, universities are working to prepare trained human cadres in light of Vision 2030 and the Human Capacity Development Program which aims to develop the capabilities of all citizens of the Kingdom of Saudi Arabia and to prepare them for the future by promoting values, developing basic and future skills, developing knowledge , enhancing their work culture, and developing their skills by providing lifelong learning opportunities, and supporting the culture of innovation and entrepreneurship, based on developing and activating policies and enablers to enhance the Kingdom's leadership (Human Capacity Development Program Media Document 2021-2025).

The Kingdom of Saudi Arabia emphasizes the importance of aligning the education system with the actual requirements of the labor market. It argues that the massive, unplanned capital expenditure on education will only bear fruit through the qualification and preparation of qualitative, not merely quantitative, human resources and will be in line with the creation of job opportunities to

accommodate the massive increase in the number of graduates and job applicants. Furthermore, interest in qualifying the workforce has begun to outpace changes in local policies in light of globalized economies. Human resources must be prepared not only for local but also for international competition, which is essential for looking forward to the twenty-first century (Al- Asmari , 2008).

The current era is called the era of the Fifth Industrial Revolution, which highlights research and innovation as drivers of the transition to a sustainable, human-centered industry that enhances the resilience of systems through the use of flexible and adaptable technologies, including human-centeredness, sustainability, and resilience. This will lead to a qualitative change in the global economic environment impacting the workforce and employment policies worldwide.

Significantly, the needs of the labor market should be understood as those renewed and evolving needs that take place in an era characterized by rapid movement and change in the structure of business and its tools. It is not permissible for production projections and educational preparation to be based on production structures and its current needs or short-term needs. Long-term strategic studies are necessary that take into account the extinction of many jobs and the emergence of new jobs, and take note of the rapid radical transformations in science and technology, and on capital that we should give increasing importance to (Al-Najjar, 2000).

Accordingly, technical and human skills have become indispensable for filling jobs in the labor market in light of the fifth industrial revolution, which proposes a vision of smart manufacturing focused on human creativity, flexibility, and professional knowledge, combining the advantages of machines and human creativity and enhancing sustainable development (Jialu et al, 2024) .

The study of Al- Khatib (2020) showed the relationship between the technological skills and employment among unemployed youth in Saudi Arabia. It examined how relevant technological skills, such as basic office IT skills, information and communications technology (ICT), internet-related skills, basic Microsoft Office applications, and computer skills, affect employment among unemployed youth in Saudi Arabia .

Clarke's study (2018) also identified the key dimensions underlying graduate employability, the development of human capital, such as knowledge and skills, and the processes through which these can be acquired and enhanced. Focusing on human skills and labor market variables that impact employability provides a framework for universities as they seek to meet the demands of multiple stakeholders andpotential areas of cooperation between universities, employers and industrial sectors.

Hence, the critical importance of the quality of higher education outcomes is highlighted in order to achieve a balance between the supply of the laborforce especially university graduates, including the University of Tabuk, and the needs of the labor market, which reduces the likelihood of graduate unemployment. Adoptingthe concept of quality in the field of higher education is reflected in the quality and level of university graduates, as it represents a protection for the erosion of thecountry's human capital, as the level of education and training has an effective impact on economic growth rates in light of the rapid changes in the era of the Fifth Industrial Revolution.

Study Problem

The challenges and intense competition in the labor market drive employers to hire highly skilled graduates to grow their businesses. In a challenging and highly competitive labor market, young people need to demonstrate the professional skills necessary to succeed. At the same time, we recognize that the gap between education and employment remains wide. Recognizing these challenges, higher education institutions have begun to seek effective solutions and initiatives. Nationally and internationally, there has been a growing focus on the role of higher education institutions in enhancing graduates' employability and employment, as evidenced by the increasing focus on university graduates as an important measure of the value of university education. (Burké, Scurry, Blenkinsopp, & Graley, 2016). Graduate employment rates have become an important key indicator of university performance and success in obtaining accreditation from academic accreditation bodies. Consequently, many universities worldwide now include work-integrated learning programs within their programs to enhance graduate employability. This perspective is often based on the assumption that universities can produce graduates who are 'job-ready' or 'employable' (Holmes, 2013). Yorke (2010) points out that the term "employability" is often used

interchangeably with the concept of "work readiness." Work readiness is a set of conditions sufficient to obtain an initial job, while employability is a set of skills necessary but insufficient to obtain a job. Whichever term is used, it is better to consider holistically the need for graduates to be employable and work-ready to increase their chances of employment.

Cinque (2016) also emphasizes that despite the variety of studies and reports that have in recent years developed a list of the soft skills necessary for higher education graduates to fill jobs in the labor market, there is no single, definitive list. Rather, it appears that the various lists share common human skills, such as communication, interpersonal interaction, teamwork, and customer service; lifelong learning skills to adapt to change, such as gathering and organizing information, problem-solving, planning and organizing; innovative and creative thinking; and systems thinking; personal skills and qualities, such as responsibility, resourcefulness, flexibility, time management, and self-confidence; technical skills; and business-related skills, such as innovation and entrepreneurship.

In light of the structural transformations and changes taking place in the labor market, the gap between higher education outcomes and market needs has widened. The rapid developments in the economy, driven by technological advancements and competition among business companies, have profoundly impacted the shape and behavior of supply and demand in this market. While technological advancements have contributed to improving and developing production in both quantity and quality, they have also caused a decline in job opportunities, especially for university graduates (Al-Hayali, 2013).

Accordingly, aligning educational outcomes with the labor market has become essential to overcome the challenges facing countries in the twenty-first century. All data indicates a weak alignment between educational outcomes and the needs of the local and global labor market and the requirements of human and economic development in the Arab world and developing countries (Al-Bahnsawy, 2018).

There is no doubt that, in light of these challenges, higher education systems will be impacted by the development of technology and the Fifth Industrial Revolution to keep pace with the demands of the era, which requires graduates to acquire skills in modern technology, artificial intelligence, data analysis, and other fields (Abdel-Aal, 2023).

This is confirmed by the findings of Al-Asmari (2008) who concluded that the changing global economic environment impacts the labor market worldwide. Therefore, it is important to study the political implications of this development during this period and in the future. One of the key implications for the Saudi labor market is the urgent need to strengthen national employment and labor policies to protect basic labor standards in the face of rapid changes. Accordingly, the role of higher education in the labor market and society as a whole is not only to prepare students to be good citizens who serve their country optimally and compete successfully in the labor market, but also to equip them with the various skills required by the labor market.

Bates & Hayes (2017) also concluded that universities should explore ways to support students' employability throughout their study by linking their existing resources and services to an employability framework.

Despite the ongoing debate in the literature about the skills that education graduates should possess to keep pace with rapid changes, there remain significant gaps in the evidence linking the successful acquisition of work-readiness skills to its impact on graduates' employability and employment, including long-term career implications. There are few available longitudinal studies exploring employability. Furthermore, there is a need to redesign the curriculum to include employability as a core concept, enabling students to define their learning activity and explicitly link it to their desired graduate competencies. Developing the education provided to post-secondary students is integral to effectively preparing them for a lifelong career in their chosen field. Therefore, employability, despite extensive debate in the literature, is likely to remain a major research direction and focus of academic discussion for some time (Griffin & Coelhoso, 2019).

Accordingly, this study proceeds from this perspective, seeking to combine theory and practice in its pursuit of effective development of the employability skills that graduates of the University of Tabuk should possess. Accordingly, Saudi universities, including the University of Tabuk, should strive for change and adopt a vision for developing graduates' employability skills.

In light of the above discussion, the study problem is defined by the following questions:

What is the degree of availability of employability skills (technical, human, and continuous learning) among graduates of the University of Tabuk, in light of the requirements of the Fifth Industrial Revolution, from their perspective?

Are there statistically significant differences at the level of ($\alpha \geq 0.05$) between the average responses of the study sample members regarding the degree of availability of employability skills (technical, human, and continuous learning) among graduates of the University of Tabuk, in light of the requirements of the Fifth Industrial Revolution, based on the variables of (gender, specialization, and qualification level)?

What is the proposed vision for developing employability skills among graduates of the University of Tabuk in light of the requirements of the Fifth Industrial Revolution?

Study Objectives:

The study aims to:

Show the degree of availability of employability skills (technical, human, and continuous learning) among graduates of the University of Tabuk in light of the requirements of the Fifth Industrial Revolution from their perspective.

Identify statistically significant differences at the $\alpha \geq 0.05$ level between the average responses of the study sample members regarding the degree of availability of employability skills (technical, human, and continuous learning) among graduates of the University of Tabuk in light of the requirements of the Fifth Industrial Revolution, based on the variables of (gender, specialization, and qualification level).

Provide a proposed vision for developing employability skills among graduates of the University of Tabuk in light of the requirements of the Fifth Industrial Revolution.

Importance of the Study

Theoretical Importance

This study is theoretically important because it proposes an insight into developing the University of Tabuk graduates' employability skills, which are more in line with the changing requirements of the Fifth Industrial Revolution. This also aligns with the more comprehensive aims of Saudi Vision 2030 concerning human capital development and labor market needs. This research will develop a body of Arabic-language academic literature and add to the knowledge surrounding the strategic planning of graduates' employability skills within the context of an evolving concept about educational workforce continuities.

Practical Importance

The findings of this study will provide employers and university leaders with guidance on how to develop graduates' employability skills better. This study will target those competencies that will cluster around sustainable graduate success in a rapidly changing work context. Additionally, it will contribute to the labor market by providing graduates with a broader skillset. The study will also inform the design of training programs to be conducted by employers to train students at graduation to better align with the needs of the Fifth Industrial Revolution and improve their employability skills.

Study Terminology

Employability Skills

Reid (2016) defines the term as the skills and attributes students need to gain an advantage in the labor market. Universities work to provide their students with these skills to ensure the achievement of goals and policies and to provide future job opportunities.

In the current study, employability skills are defined as a set of technical and human capabilities, as well as lifelong learning skills necessary for individuals to adapt to the changes required to be successful in their job search and cope with the demands of the current labor market. They play a

crucial role in achieving success and improving employment opportunities in light of the requirements of the Fifth Industrial Revolution.

Fifth Industrial Revolution

The term refers to human-centricity as a crucial industry characteristic, representing an approach that places human interests and fundamental human values at the core of industrial practices. The power of the human mind and creativity constitutes the path to flexibility and sustainability by combining human and system capabilities. At the same time, workers' skills are developed, upskilled, and further retrained to maintain their relevance, competitiveness, and suitability within the industry (Wang et al., 2024).

The current study refers to a transformational period characterized by the reshaping of industries and societies, a qualitative shift in how technology is used to serve humanity, and the use of automation systems, machines, and robotics within an approach that places greater emphasis on the principles of sustainability, business resilience, and the convergence of technologies that blur the lines between the physical, digital, and biological worlds, from artificial intelligence to biotechnology and beyond.

LITERATURE REVIEW

A number of studies addressing the topic of employability skills in light of the requirements of the Fifth Industrial Revolution was reviewed. The studies are presented chronologically, from the earliest to the most recent, as follows:

The study of Humburg (2014) examined the relationship between skills and the employability of university graduates. It attempted to uncover the trends shaping the labor market and how they affect employers' demand for skills, the most important skills in the graduate recruitment process, how students' personalities relate to their field of study, and the skills that protect graduates from labor market stagnation. The study concluded that employers' actual hiring decisions are often influenced by graduates' level of professional experience and personal skills. It also found an increasing demand for other types of skills, such as entrepreneurial skills, innovation and creativity skills, and interpersonal skills.

The study of Paadi (2014) explored different types of skills to determine which are most significant to employers and which are essential for enhancing the employability of HR graduates. The study adopted a qualitative methodology, and data was collected using semi-structured interviews with open-ended questions. A list of questions was developed for various participants, and the sample consisted of academics, employers, and HR graduates. The study concluded that general skills are in highest demand in the workplace. There are different levels of employability in HR management, with different knowledge, competencies, and skills for each level. Knowing the basic skills, competencies, and abilities of HR graduates can help build their skill base before graduation and help higher education produce employable graduates.

The study of Al-Khatib (2020) indicated the relationship between technological skills and employment among unemployed youth in the Kingdom of Saudi Arabia. How do technology-related skills, such as information technology, computer skills, and internet-related skills, predict employment among unemployed youth? The study used a descriptive survey approach and concluded that technical skills, such as IT, ICT, and internet-related skills, significantly impact employment opportunities among unemployed youth in the Kingdom of Saudi Arabia.

The study of Al Asefer & Zainal (2021) investigated the aspect of soft skills and employability from the perspective of employers. The study adopted an analytical approach, using information collected from various published papers, internet sources, and newspapers. It represented a literature review in an attempt to answer several questions about the relationship between soft skills and employability in the 21st century. The study concluded that soft skills are a strong predictor of enhanced employability among graduates in a dynamic global workplace, and that employers typically prefer to hire employees who possess a high-quality combination of soft skills. Accordingly, the study highlighted the idea that soft skills must be acquired and developed during students' lives so that they can perform effectively in their academic careers and possess qualities that enhance future employability.

The study of Ebaid (2021) aimed to uncover employers' perceptions of the employability skills required of accounting graduates in Saudi Arabia. To achieve this goal, a sample of employers in Saudi Arabia was invited to participate in a survey to identify the most important technical and general skills required for accounting positions. Eight of the twelve technical skills were ranked as the most important: financial accounting and reporting, tax and zakat accounting, cost accounting, computer and information technology skills, and business and corporate law. The results also showed that technical skills are necessary, but not sufficient, for accounting graduates to succeed in the job market. Employers explained that success and continued employment require graduates to possess a wide range of general skills, and that university policymakers need to adapt their curricula to enable graduates to acquire and develop proficiency in the general skills required by the modern job market.

Their study of Samida et al. (2022) attempted to identified the skills required by the labor market and their availability among graduates of the Public Administration and Business Administration departments at the Faculty of Economics and Political Science at Misurata University, as well as the availability of each of these skills. The study used a descriptive and analytical approach and reached several results, the most important of which was that the overall level of skill availability among graduates of the Public Administration and Business Administration departments at the Faculty of Economics and Political Science at Misurata University was high.

The study of Holidi & Abu Seman (2023) explored the perceptions of employers and youth in Malaysia regarding the employability skills needed by youth to secure employment, and any discrepancies in their perceptions. Using a descriptive approach, the results revealed significant differences in the perceptions of employers and youth for most of the employability skills assessed, with the exception of basic skills. The results of this study can be used to enhance understanding of employability skills and serve as guidelines for policy-making decisions to establish shared expectations and reduce expectation gaps between graduates and employers.

The study of Borrageiro & Mennega (2023) sought to raise awareness among all stakeholders, such as the business sector, policymakers, and individual workers, of the need to acquire new skills to benefit from the advantages of the Fourth Industrial Revolution. Compared to industrially advanced countries, a larger proportion of the workforce in developing countries is unprepared for the changes that technology brings to the workplace. Developing relevant skills will boost job creation and support much-needed economic growth in Africa. Human capital development has been shown to be a prerequisite for countries' participation in the Fourth Industrial Revolution, specifically the development of soft skills, technical skills, process skills, and social skills as the skills needed to cope with the changes brought about by the industrial revolution.

Finally, the study of Bindawas (2024) attempted to uncover the clear gap between academia and employers in terms of employability, focusing on whether graduate students possess the same skill set required by employers. The results concluded that higher education plays a role in improving graduates' employability. It equips them with specialized skills, advanced knowledge, and critical thinking skills, which all increase their employability.

Although the Saudi government has begun taking measures to promote development in education through the "Saudi Vision 2030" program, there are strong indicators that the knowledge and skills possessed by graduates in Saudi Arabia are mismatched with labor market requirements. The education system needs comprehensive reform and economic diversification, while creating new job opportunities. Employers believe that Saudi graduates lack the soft skills that impact their employability. Collaboration between students and employers is needed, as employers can provide insights that support graduates' employability.

The present study has benefited from previous studies in defining the study problem, building the theoretical framework, developing the study tool, and linking the results of the current research to previous studies. It was distinguished by presenting a proposed vision for developing the employability skills of the University of Tabuk graduates to keep pace with the requirements of the labor market in light of the Fifth Industrial Revolution, which increases their employment opportunities in the era of this revolution, and contributes to enriching the labor market with competent graduates who possess diverse skills.

STUDY METHODOLOGY AND PROCEDURES

1. Study Methodology

The present study employed a descriptive survey approach to describe the degree of employability skills — specifically technical, human, and continuous learning — among University of Tabuk graduates, from their perspectives, in light of the requirements of the Fifth Industrial Revolution. It also presented a proposed vision for developing the employability skills of the University of Tabuk graduates in light of the requirements of the Fifth Industrial Revolution. The descriptive approach is one of the most popular and widely used study methods in descriptive studies, especially since it provides a wealth of data and information about the phenomenon to be measured or the subject of the study.

2. Study Population

The study population consisted of all graduates of the University of Tabuk during the academic year 1445 AH, numbering (1,961) male graduates and (3,758) female graduates, resulting in a total population of (5,719).

3. Study Sample

To obtain an appropriate sample size from the study population, the Stephen Thompson equation was applied. The minimum representative sample size was (361) male and female graduates from the University of Tabuk. The questionnaire was distributed electronically to the study population, randomly stratified according to gender, until the required number of community members responded to the study tool. This number reached (361), representing (6.3%) of the study population. The study used the stratified random sampling method to draw the sample from the study population, which is a scientifically accepted probability sample.

The questionnaire was randomly distributed electronically to the study sample, which numbered (269) male and female faculty members from both branches of the University of Tabuk, at the following link: https://forms.gle/DJi3MBszk7vpyqjt8. All sample members responded to the study tool. The following table shows the distribution of study sample members according to study variables:

Table (1) Distribution of the study sample of the University of Tabuk graduates, by the variables of gender, specialization, and qualification level

Independent Variables	Variable Categories	Number	Percentage
Gender	Male	124	%34.3
	Female	237	%65.7
	Total	361	%100
Specialization	Scientific	117	%32.4
	Theoretical	244	%67.6
	Total	361	%100
Qualification Level	Bachelor's degree	252	%69.8
	Postgraduate studies	109	%30.2
	Total	361	%100

4. Study Tool

In light of the main objective of the study, a questionnaire was constructed as a research tool. This questionnaire, after being standardized, consisted of (30) statements distributed across three dimensions: the first dimension (technical skills), the second dimension (human skills), and the third dimension (continuous learning skills).

In addition to the previous dimensions, there were some independent variables: these included three variables, which were treated as independent variables: gender (male, female), specialization (scientific, theoretical), and qualification level (bachelor's, postgraduate).

4.1. Validity of the Study Tool

This was verified through:

A. Content Validity or Apparent Validity

To verify the validity of the study tool's content and to ensure that it serves the study's objectives, the study tool was presented to (11) arbitrators from among the faculty members of Saudi universities, and they were asked to consider the adequacy of the study tool, and to express their opinion on it, in terms of: the suitability of the paragraph to the content, and to consider the adequacy of the study tool in terms of the number of paragraphs, their comprehensiveness, and the diversity of their content, or any comments they deem appropriate about modification, change, or deletion according to what the arbitrating professor deems necessary. The arbitrators' comments and suggestions were studied, and amendments were made, in order to ensure the apparent validity and content validity of the tool, and it was considered that the tool is valid for measuring what it was designed for.

B. Internal Consistency Validity of the Study Tool's Phrases:

After making the modifications suggested by the arbitrators to the initial version, the questionnaire now consists of (30) phrases. To ensure the structural validity of the study tool after completing the arbitration procedures, it was applied to a survey sample of (30) graduates from the study community (University of Tabuk graduates). Construct validity coefficients were then extracted by calculating the Pearson Correlation Coefficient between each phrase and the dimension contained therein using the Statistical Package for Social Sciences (SPSS). This was done to demonstrate the extent of the phrases' consistency with the domain they contained. The following is a presentation of the study tool's axes:

Table (2) Pearson correlation coefficients between each statement and the dimension conta ined therein

First dimension: Technical Skills		The second dimension: Human Skills		The third dimension: Continuous Learning Skills	
Phrase number	Correlation coefficient	Phrase number	Correlation coefficient	Phrase number	Correlation coefficient
1	**0.853	1	**0.825	1	**0.790
2	**0.765	2	**0.869	2	**0.862
3	**0.751	3	**0.876	3	**0.795
4	**0.733	4	**0.846	4	**0.868
5	**0.866	5	**0.802	5	**0.838
6	**0.802	6	**0.885	6	**0.801
7	**0.890	7	**0.925	7	**0.931
8	**0.712	8	**0.752	8	**0.890
9	**0.815	9	**0.794	9	**0.836
10	**0.824	10	**0.841	10	**0.897

(**) means significant at a significance level of)0.01(

The results in the previous table show that the values of the correlation coefficients for the phrases of the first dimension: technical skills, with the total score (of the dimension) ranged between (0.890**-0.733**) at the significance level (0.01), which indicates the suitability of these phrases for measuring technical skills. The results in the previous table also show that the values of the correlation coefficients for the phrases of the second dimension: human skills, with the total score (of the dimension) ranged between (0.925**-0.752**) at the significance level (0.01) or less, which indicates the suitability of these phrases for measuring human skills. The results also indicate that the values of the correlation coefficients for the phrases of the third dimension: continuous learning skills to adapt to changes, with the total score (of the dimension) ranged between (0.931**-0.790**) at the significance level (0.01) or less, which indicates the suitability of these phrases for measuring continuous learning skills to adapt to changes. In light of the results of internal consistency, no phrase was deleted from the study tool phrases.

C. Constructive Validity of the Study Tool's Dimensions

To verify the construct validity of the study tool's dimensions, Pearson's correlation coefficients were calculated between these dimensions and the total questionnaire, using the Statistical Package for Social Sciences (SPSS). The following is a presentation of the correlation coefficients between the questionnaire's dimensions and the total questionnaire, as follows:

Table (3) Correlation coefficients between the dimensions of the questionnaireand the Total questionnaire

Dimensions and Total Questionnaire		First Dimension: Technical Skills	Second Dimension: Human Skills	Third Dimension: Continuous Learning Skills	Total Questionnaire
First Dimension: Technical Skills	Pearson's correlation	1	0.860	0.721	0.966
	Statistical significance		0.01	0.01	0.01
Second Dimension: Human Skills	Pearson's correlation		1	0.851	0.912
	Statistical significance			0.01	0.01
Third Dimension: Continuous Learning Skills	Pearson's correlation			1	0.930
	Statistical significance				0.01

The previous table indicates that the correlation coefficients ranged between (0.966) and (0.721), and they are statistically significant at the significance level (0.01), which indicates the strength of internal consistency between the dimensions of the study tool, and thus the tool is considered valid for what it was designed to measure.

4.2. Questionnaire Reliability

The reliability of the tool was verified using Cronbach's Alpha. After the questionnaire was administered to the survey sample and the responses were transcribed, reliability was calculated using Cronbach's Alpha to determine the reliability of the dimensions and the questionnaire as a whole. The following table illustrates this:

Table (4) Values of the Reliability Coefficients for the Questionnaire Dimensions and the Questionnaire as a Whole Using Cronbach's Alpha

	Dimensions	Number of Phrases	Reliability Coefficient Values
1	First Dimension: Technical Skills	10	0.894
2	Second Dimension: Human Skills	10	0.868
3	Third Dimension: Continuous Learning Skills	10	0.907
	Total Questionnaire	30	0.895

The previous table shows that the reliability coefficient values for the total of the first dimension: technical skills, came to a value of (0.894), and the reliability coefficient for the total of the second dimension: human skills (0.868), and the third dimension: continuous learning skills (0.907). It also shows that the reliability coefficient value of the questionnaire as a whole (the three dimensions

combined) reached (0.895), which indicates that the study questionnaire has an appropriate reliability coefficient, and the reliability of the results that the questionnaire will produce when applied can be trusted.

After completing the calculation of the validity and reliability of the questionnaire, the questionnaire reached its final form, consisting of (30) statements distributed across three dimensions. The response to each statement was designed according to a five-point Likert scale. The following table shows the estimated weights corresponding to each response:

Table (5) shows the estimated weights of the response alternatives for each of the questionnaire statements.

Response Alternatives / PhraseType	Very Low	Low	Medium	High	Very High
Positive	1	2	3	4	5

The total score on the scale expresses the sum of the estimated weights obtained by the degree of availability of employment skills among graduates of the University of Tabuk in light of the requirements of the Fifth Industrial Revolution from their point of view, in all phrases of the tool. Thus, the lowest score for the answer in the tool is (30) and the highest score is (150).

5. Establishing Criteria for Interpreting Questionnaire Results:

To determine the criteria for interpreting the arithmetic averages of the study sample members' responses to the questionnaire statements, meaning the point or range at which the examinees' responses pass the assessment category for this range. The process of determining this level is considered one of the fundamental aspects in constructing educational standards. Based on this, the arithmetic averages obtained in the study can be evaluated and used to interpret the collected data. The following table displays the scale used for result interpretation.

Table (6) Data Interpretation Scale for Commenting on the Results

Athematic Mean	**Response level**
Less than 1.80	Very Low
1.80 - less than 2.60	Low
2.60 - less than 3.40	Medium
3.40 - less than 4.20	High
4.20 - 5	Very High

These values were calculated according to the following steps: The range of the scale was calculated ,(4=1-5) and then divided by the number of cells on the scale to obtain the length of the corresponding cell for each estimate (0.8=5/4). This value was then added to the lowest value on the scale, or the beginning of the scale, which is the correct one, to form the first category. The length of the category was then added each time to form the second category, followed by the next category. This criterion was presented to the reviewers, and they all expressed their approval of it, stating its suitability for the purposes and objectives of the current study.

6. Statistical Methods

To achieve the study objectives and analyze the collected data, several appropriate statistical methods were employed using the Statistical Package for Social Sciences (SPSS 24). The following statistical measures were used:

Frequencies and percentages were used to identify the demographic characteristics of the study sample members.

Pearson's correlation coefficient was used to determine the internal consistency of the items and axes of the study instrument.

Cronbach's alpha reliability coefficient was used to determine the reliability of the study instrument.

Arithmetic means and standard deviations were used to describe the degree of availability of employability skills (technical, human, and continuous learning to adapt to change) among Tabuk University graduates in light of the requirements of the Fifth Industrial Revolution, from their perspective.

Independent Samples Test (T) to compare the average responses of the study sample members regarding the degree of availability of employment skills among graduates of Tabuk University in light of the requirements of the Fifth Industrial Revolution and the sub-dimensions (technical - human - continuous learning) according to the variables (gender - specialization – qualification level).

Presentation and Discussion of Results

The following is a presentation of the study's findings, according to the sequence of its questions.

Results related to the first question:

What is the degree of availability of employment skills (technical, human, and continuous learning) among graduates of the University of Tabuk, in light of the requirements of the Fifth Industrial Revolution, from their perspective?

To answer this question, arithmetic means, standard deviations, and rankings were calculated, and the degree of evaluation was indicated, based on the study sample members' responses to the total for each dimension of the questionnaire and the total questionnaire. This can be illustrated in the following table:

Table (7) Arithmetic Means, Standard Deviations, Rankings, and Degree of Verification, based on the study sample members' responses to the total for each dimension of the questionnaire and the total questionnaire.

	Dimensions	**Arithmetic mean**	**Standard deviation**	**Availability level**	**Dimension Arrangement**
1	Second Dimension: Human Skills	4.30	0.54	Very High	1
2	Third Dimension: Continuous Learning Skills	4.17	0.57	High	2
3	First Dimension: Technical Skills	3.18	0.72	Medium	3
	Total Questionnaire	3.88	0.46	High	

The previous table shows that the overall degree of availability of employability skills among the graduates of the University of Tabuk, who represent the study sample, in light of the requirements of the Fifth Industrial Revolution, from their perspective, came in at an arithmetic mean of (3.88), a standard deviation of (0.46), and a degree of availability of (high), which is the fourth level out of five levels on which the sample was surveyed. This result may be attributed to the University of Tabuk's efforts to ensure the quality of its programs as a university accredited by the Education and Training Evaluation Commission in the Kingdom through its academic programs to prepare students, enrich their educational journey, and focus on their academic, psychological, professional, and social growth to take their place in a changing economy. This also broadens their horizons, helps them think, and

provides them with the skills and knowledge to lead a life full of success and achievement, achieving compatibility between these outcomes and the requirements of the global and local labor market.

The previous table also shows that the first rank in terms of approval of the degree of availability of skills among graduates of the University of Tabuk in light of the requirements of the Fifth Industrial Revolution from their point of view, who represent the study sample, was obtained by (the second dimension: human skills), as the arithmetic mean on this dimension as a whole was (4.30), with a standard deviation of (0.54), and a degree of availability (very high). The second rank in terms of approval of the degree of availability of skills among graduates of the University of Tabuk in light of the requirements of the Fifth Industrial Revolution from their point of view was (the third dimension: continuous learning skills to adapt to changes), as the arithmetic mean on this dimension as a whole was (4.17), with a standard deviation of (0.57), and a degree of availability (high). The third and last rank in terms of approval of the degree of availability of skills among graduates of the University of Tabuk in light of the requirements of the Fifth Industrial Revolution from their point of view was (the first dimension: technical skills), as the arithmetic mean on this dimension as a whole was (3.18), with a standard deviation of (0.72), and a degree of availability (medium). This result may be attributed to the nature of the university graduates' majors, which are predominantly theoretical and humanities, with preparation focused on humanistic skills and lifelong learning.

This result is consistent with the results of Bindawas (2024), Samida et al. (2022), Homburg (2014), Ebaid (2021), Holidi & Abu Seman (2023), and Borrageiro & Mennega (2023), but differs from the results of Ali Al-Khatib (2020). Arithmetic means, standard deviations, rankings, and a statement of the degree of assessment were calculated based on the study sample members' response to each statement of the dimensions and the total of the dimensions. This can be explained in the following tables:

Table (8): Arithmetic Means, Standard Deviations, Rankings, and Availability Levels for Each Statement and the Total of the First Dimension (Technical Skills), Based on Study Sample Responses

Serial Number	Phrases	Athematic Mean	Standard Deviation	Degree	Rank
5	I am committed to implementing best practices to ensure the security of systems and data.	3.92	1.02	High	1
1	I have the ability touse various AI tools .	3.85	0.75	High	2
4	I am able to extract valuable insights from data to make informed decisions.	3.55	0.99	High	3
2	I use machine learning algorithms to analyze data and make decisions.	3.32	0.89	Medium	4
3	I can handle different data analysis tools likeExcel, Python.	3.29	1.10	Medium	5
7	I work to implement technical solutions that reduce environmental impact.	3.13	1.17	Medium	6
9	I can use augmented reality technology in design and marketing.	3.11	1.12	Medium	7

10	I have the ability to understand multiple programming languages.	2.61	1.22	Medium	8
8	I can design sustainable technology	2.55	1.01	Low	9
6	I can manage cyber threats and address security vulnerabilities.	2.47	0.93	Low	10
First Dimension: Technical Skills		**3.18**	**0.72**	**Medium**	

The above table shows that the degree of availability of technical skills among the University of Tabuk graduates, in light of the requirements of the Fifth Industrial Revolution, from their perspective, was generally considered to be (medium), with an arithmetic mean of (3.18), a standard deviation of (0.72). The arithmetic means of the statements ranged between (2.47-3.92), and the standard deviations of the statements ranged between (0.75) and (1.22). Therefore, the statements indicating the fulfillment of this dimension ranged between (high) and (low) availability. Statement No. (5), "I am committed to implementing best practices to ensure the security of systems and data," ranked first with an arithmetic mean of (3.92), a standard deviation of (1.02), and a (high) availability. Statement No. (1), "I have the ability to use various artificial intelligence tools," ranked second with an arithmetic mean of (3.85), a standard deviation of (0.75), and a (high) availability. This may be due to the efforts and initiatives offered by the University of Tabuk to its staff, represented by the Artificial Intelligence and Sensing Technologies Research Center, and the specialized programs offered by the university, such as the master's program in Artificial Intelligence, which ensure graduates' skills are enhanced to meet labor market needs.

As for the statements that received the lowest rankings, statement number (8) "I can design sustainable technology projects that enhance environmental efficiency" came in ninth and penultimate place, with an arithmetic mean of (2.55) and a standard deviation of (1.01), and with a (low) availability score. Statement number (6) "I can manage cyber threats and address security vulnerabilities" came in tenth and last place, with an arithmetic mean of (2.47), a standard deviation of (1.28), and a (low) availability score. This result may be attributed to the fact that these skills are specialized, and the university seeks to develop them in specific categories of graduates, such as graduates of the College of Computer Science and Information Security. Regarding the second dimension (human skills), arithmetic means, standard deviations, rankings, and a statement of the degree of assessment were calculated, based on the study sample members' response to each statement of the dimension and the total of the second dimension. This can be explained in the following table:

Table (9): Arithmetic Means, Standard Deviations, Rankings, and Availability Levels for Each Statement and the Overall Score of the Second Dimension (Human Skills), Based on Study Sample Responses

Serial Number	Phrases	Athematic Mean	Standard Deviation	Degree	Rank
7	I can understand and respond to others' feelings in a positive way.	4.54	0.74	Very High	1
9	I can handle stress and pressure in the work environment.	4.42	0.63	Very High	2
10	I can adapt to all environments and establish good relationships with others.	4.41	0.71	Very High	3

8	I can showempathy to my colleagues when dealing with professional or personal challenges.	4.41	0.82	Very High	4
5	I collaborate well with diverse teams to achieve common goals.	4.29	0.71	Very High	5
6	I have leadership skills that enable me to manage projects efficiently.	4.29	0.87	Very High	6
4	I use critical thinking when evaluating options at work.	4.19	0.72	High	7
3	I am able to innovate new solutions to complex challenges.	4.19	0.78	High	8
2	I have the ability to think creatively to improve processes or products.	4.17	0.76	High	9
1	I can comprehensively analyze problems and find effective solutions.	4.14	0.76	High	10
Second Dimension: Human Skills		**4.30**	**0.54**	**Very High**	

As the above table indicates, the degree of availability of human skills among graduates of the University of Tabuk, in light of the requirements of the Fifth Industrial Revolution, from their perspective, generally came in at (very high) availability, with an arithmetic mean of (4.30), and a standard deviation of (0.54). The arithmetic means of the statements ranged between (4.14-4.54), and the standard deviations of the statements ranged between (0.87) and (0.63). Therefore, the statements indicating the fulfillment of this dimension ranged between (very high) and (high) availability. Statement No. (7), "I can understand the feelings of others and interact with them positively," ranked first with an arithmetic mean of (4.54), a standard deviation of (0.74), and a (very high) rating. Statement No. (9), "I can deal with stress and pressure in the work environment," ranked second with an arithmetic mean of (4.42), a standard deviation of (0.63), and a (very high) rating. This may be because these skills increase graduates' bonds with colleagues, improve their morale, and foster confidence and positivity in the work environment. They also encourage them to benefit from the skills and expertise of others.

As for the statements that received the lowest rankings, statement (2) "I have the ability to think creatively to improve processes or products" came in ninth and penultimate place, with an arithmetic mean of (4.17) and a standard deviation of (0.76). Statement (1) "I can comprehensively analyze problems and find effective solutions" came in tenth and last place, with an arithmetic mean of (4.14), a standard deviation of (0.76), and a (high) degree of availability. This result may be attributed to the fact that, despite graduates' high levels of creative thinking and effective problem analysis skills, they recognize that these skills need to be continually enhanced to overcome the challenges of the Fifth Industrial Revolution. Regarding the third dimension (continuous learning skills to adapt to changes), arithmetic means, standard deviations, rankings, and a statement of the degree of

availability were calculated, based on the study sample members' response to each statement of the dimension, and the total of the third dimension. This can be illustrated in the following table:

Table (10): Arithmetic Means, Standard Deviations, Rankings, and Availability Levels for Each Statement and the Overall Score of the Third Dimension (Continuous Learning Skills for Adapting to Change), Based on Study Sample Responses

Serial Number	Phrases	Athematic Mean	Standard Deviation	Degree	Rank
8	I have the curiosity and exploration to utilize all resources to improve my skills.	4.37	0.71	Very High	1
6	I can work effectively in a fast-paced work environment.	4.35	0.65	Very High	2
1	I am constantly learning new skills to develop myself.	4.33	0.68	Very High	3
10	I deal flexibly with challenges in different situations.	4.25	0.79	Very High	4
4	I use modern technologies to enhance my productivity and the performance of my team.	4.22	0.76	Very High	5
7	I can adapt to changes in technology and working methods.	4.21	0.80	Very High	6
5	I strive to strike a balance between technology and humanity in the solutions I offer.	4.07	0.84	High	7
9	I use digital platforms for continuous professional development.	4.06	0.80	High	8
2	I keep up with technological changes through self-learning and training programs.	4.06	0.87	High	9
3	I find comfort working alongside intelligent systems and robots.	3.78	0.89	High	10
Third Dimension: Continuous Learning Skills		**4.17**	**0.57**	**High**	

The above table shows that the degree of availability of continuous learning skills among graduates of the University of Tabuk, in light of the requirements of the Fifth Industrial Revolution, from their perspective, generally came in at (high) availability, with an arithmetic mean of (4.17) and a standard deviation of (0.57). The arithmetic means of the statements ranged between (3.78- 4.37), and the standard deviations of the statements ranged between (0.65) and (0.89). Therefore, the statements indicating the fulfillment of this dimension came in at (very high) and (high) availability. Statement No. (8), "I have the curiosity and exploration to utilize all sources to improve my skills," ranked first with an arithmetic mean of (4.37), a standard deviation of (0.71), and (very high) availability. Statement No. (6), "I can work effectively in a rapidly evolving work environment," ranked second with an arithmetic mean of (4.35), a standard deviation of (0.65), and a (very high) rating. This result may be attributed to the fact that the Fifth Industrial Revolution requires the use of advanced technologies such as artificial intelligence, big data analytics, and biotechnology, which can be used to develop sustainable environmental solutions. Graduates' curiosity and exploration open the door to new job opportunities in rapidly evolving fields such as software development, data analytics, and environmental engineering. As for the statements with the lowest rankings, statement (1) "I keep up with technological changes through self-learning and training courses" came in ninth and penultimate place, with an arithmetic mean of (4.06) and a standard deviation of (0.87), and with a (high) degree of availability. Statement (3) "I find comfort working alongside smart systems and robots" came in tenth and last place, with an arithmetic mean of (3.78), a standard deviation of (0.89), and a (high) degree of availability. This may be due to the fact that the Fifth Industrial Revolution presents graduates with constant challenges as automation accelerates and traditional jobs evolve,

making it necessary to continually improve their skills to thrive in the digital economy. Furthermore, the ethical considerations surrounding smart systems must be carefully addressed.

RESULTS RELATED TO THE SECOND QUESTION:

Are there statistically significant differences at the level ($\alpha \geq 0.05$) between the average responses of the study sample members regarding the degree of availability of employability skills (technical, human, and continuous learning skills among the University of Tabuk graduates in light of the requirements of the Fifth Industrial Revolution, according to the variables (gender, specialization, and qualification level)?

To identify the differences between the responses of the study sample members, graduates of the University Tabuk, regarding the degree of availability of employability skills (technical, human, and continuous learning) among Tabuk University graduates in light of the requirements of the Fifth Industrial Revolution, according to the variable (gender), a t-test was conducted for two independent samples. To determine the significance of the differences between the responses of the study members, the following table shows this:

Table (11): Results of the *t*-Test Assessing Gender-Based Differences in the University of Tabuk Graduates' Perceived Availability of Employment Skills in Light of Fifth Industrial Revolution Requirements

Dimensions	Gender	Number	Athematic Mean	Standard Deviation	Degrees of freedom	t-value	Statistical significance
First Dimension: Technical Skills	Male	124	3.11	0.58	359	0269	0.604
	Female	237	3.21	0.75			
Second Dimension: Human Skills	Male	124	4.16	0.64	359	20.88	0.000
	Female	237	4.38	0.47			
Third Dimension: Continuous Learning Skills	Male	124	4.08	0.66	359	24.02	0.000
	Female	237	4.21	0.51			
Overall Availabilityof Employment Skills	Male	124	3.78	0.55	359	28.77	0.000
	Female	237	3.94	0.39			

The table given above shows statistically significant differences at the level of ($0.05 \geq \alpha$) between the average responses of the study sample members, graduates of the University of Tabuk, regarding the degree of availability of employment skills in light of the requirements of the Fifth Industrial Revolution, in (human skills, continuous learning skills, and the total score of skills) between the (male and female) categories, in favor of (females). The statistical (t) test value reached (20.88 - 24.02 - 28.77), respectively, which are statistically significant values. This may be attributed to the efforts of Saudi universities, including the University of Tabuk, to empower women based on the Kingdom's Vision 2030 and its programs. The women's issue receives great attention from the government of the Kingdom of Saudi Arabia, as well as from relevant authorities, including the Ministry of Education, which seeks to achieve the goals of the vision and ensure increased participation of women in the labor market.

To identify the differences between the responses of the study sample of the University of Tabuk graduates regarding the degree of availability of employment skills (technical, human, and continuous learning) among of the University of Tabuk graduates in light of the requirements of the Fifth Industrial Revolution, according to the variable of (specialization), a t-test was conducted for two independent samples to determine the significance of the differences between the responses of the study sample members. The following table illustrates this:

Table (12): Results of the *t*-Test Assessing Specialization-Based Differences in the University of Tabuk Graduates' Perceived Availability of Employment Skills in Light of Fifth Industrial Revolution Requirements

Dimensions	Specialization	Number	Athematic Mean	Standard Deviation	Degrees of freedom	t-value	Statistical significance
First Dimension: Technical Skills	**Theoretical**	244	3.03	0.72	359	1.896	0.169
	Practical	117	3.49	0.62			
Second Dimension: Human Skills	**Theoretical**	244	4.31	0.55	359	0.693	0.406
	Practical	117	4.30	0.54			
Third Dimension: Continuous Learning Skills	**Theoretical**	244	4.14	0.59	359	19.88	0.000
	Practical	117	4.22	0.52			
Overall Availabilityof Employment Skills	**Theoretical**	244	3.83	0.47	359	6.26	0.013
	Practical	117	4.00	0.41			

The above table shows statistically significant differences at the level of ($\alpha \geq 0.05$) between the average responses of the study sample members, graduates of the University of Tabuk, regarding the degree of availability of employability skills in light of the requirements of the Fifth Industrial Revolution, in (continuous learning skills, and the total skill score) between the (practical and theoretical) categories, in favor of (practical). The statistical (t) test value reached (6.26- 19.88), respectively, which is a statistically significant value. This may be due to the nature of study in practical specializations contributing to a greater degree to enhancing employability skills in general, as well as skills for continuous learning and adapting to changes in the labor market, supporting the graduate's career path at all stages, and the transition from one job to another in the labor market.

To identify the differences between the responses of the study sample members, graduates of the University of Tabuk, regarding the degree of availability of employability skills (technical, human, and continuous learning) among graduates of the University of Tabuk in light of the requirements of the Fifth Industrial Revolution, according to the variable of (qualification), a (t) test was conducted for two independent samples to determine the differences. The significance of the differences in participants' responses is presented in the following table:

Table (13): Results of the *t*-Test Assessing Qualification Level -Based Differences in the University of Tabuk Graduates' Perceived Availability of Employment Skills in Light of Fifth Industrial Revolution Requirements

Dimensions	Qualification Level	Num ber	Athematic Mean	Standard Deviation	Degrees of freedom	t-value	Statistical significance
First Dimension: Technical Skills	**Bachelor's**	252	3.14	0.742	359	3.55	0.060
	Postgraduate studies	109	3.26	0.691			
Second Dimension: Human Skills	**Bachelor's**	252	4.36	0.575	359	22.97	0.000
	Postgraduate studies	109	4.17	0.447			
Third Dimension: Continuous Learning Skills	**Bachelor's**	252	4.18	0.634	359	68.99	0.000
	Postgraduate studies	109	4.16	0.401			
Overall Availabilityof Employment Skills	**Bachelor's**	252	3.89	0.515	359	39.94	0.000
	Postgraduate studies	109	3.86	0.304			

The table given above shows statistically significant differences at the level of ($\alpha \geq 0.05$) between the average responses of the study sample of graduates of Tabuk University regarding the degree of availability of employment skills in light of the requirements of the Fifth Industrial Revolution, in (human skills, lifelong learning skills, and the total score of skills) according to the qualification level variable between the two qualification categories (bachelor's and postgraduate studies). The statistical (t-test) value reached (22.97-68.99-39.39), respectively, and is statistically significant at the level of (0.01), in favor of graduates who hold a bachelor's degree. This may be attributed to the continuous and persistent efforts made by the university, represented by the Agency for Graduates in the Deanship of Student Affairs, to raise the level of its graduates' outputs for bachelor's students in line with and achieving the Kingdom's Vision 2030, ensuring alignment between the university's outputs and the needs of the labor market, promoting and supporting a culture of innovation and entrepreneurship, developing and rehabilitating skills, and consolidating and enhancing values.

The table also shows that there are no statistically significant differences at the level ($0.05 \geq \alpha$) between the average responses of the study sample members of the University of Tabuk graduates, regarding the degree of availability of employment skills among them in light of the requirements of the Fifth Industrial Revolution, in (technical skills) according to the qualification level variable between the two qualification categories (bachelor's and postgraduate studies), as the value of the statistical (t-test) reached (3.55), which is not statistically significant, which indicates the agreement of graduates of all categories on the necessity of enhancing and supporting their technical skills to keep pace with the requirements of the Fifth Industrial Revolution and the Kingdom of Saudi Arabia's constant endeavor to develop its national economy, and to accomplish ambitious development projects in various fields.

Results related to the third question

What is the proposed vision for developing the employability skills of the University of Tabuk graduates in light of the requirements of the Fifth Industrial Revolution?

The proposed vision for developing the employability skills of the University of Tabuk graduates in light of the requirements of the Fifth Industrial Revolution is based on the results of the field study and the third strategy of the University of Tabuk, which demonstrates that one of the most important opportunities for the University of Tabuk is its location in a region rich in development projects and the availability of job opportunities for graduates in major projects. The most important challenges facing the university are the rapid changes in labor market requirements. The proposed vision is based on several premises and foundations, and seeks to achieve several goals by implementing the necessary measures and attempting to identify obstacles to implementing the vision and ways to overcome them.

3-1 Objective of the Proposed Vision:

The proposed vision for developing the employability skills of the University of Tabuk graduates aims to keep pace with the requirements of the labor market in light of the Fifth Industrial Revolution, thus increasing their employment opportunities in this era and contributing to enriching the labor market with competent graduates possessing diverse skills.

3-2 Principles of the Proposed Vision:

The proposed vision is based on a set of principles, including:

Saudi Arabia's Vision 2030, and the Human Capacity Development Program, one of its programs, which seeks to ensure alignment between educational outcomes and labor market needs.

The tremendous technological progress and the overwhelming pace witnessed by the world today have increased the need for generations capable of keeping pace with the future.

The Fifth Industrial Revolution has become a reality experienced by all societies. Graduates must be prepared for it and provided with the skills that enable them to deal with it and its applications.

Emphasizing that the diversity of graduates' skills is one of the key approaches to keeping pace with the Fifth Industrial Revolution and meeting its requirements.

Rapid changes, such as development projects in the Kingdom and the Tabuk region, and the accelerating digital transformation in light of the Fifth Industrial Revolution.

The University of Tabuk's third strategy, which seeks to link external environmental issues, national trends, and Vision programs with the university's institutional outcomes to ensure the university's initiatives align with national trends.

3-3 Characteristics of the Proposed Vision:

The proposed vision has several characteristics to achieve its goal and make it more effective. These characteristics include:

Flexibility: The ability to implement it in light of the changes and developments of the Fifth Industrial Revolution.

Realism: The ability to implement the proposed vision under available circumstances and resources.

Participation: The participation of all stakeholders, including employers in various business sectors, during implementation.

Comprehensiveness: The comprehensive and sustainable excellence of the employability skills of university graduates.

Continuity: Continuous monitoring of all new developments to equip graduates with the skills necessary to deal with the Fifth Industrial Revolution.

3-4 Components and Requirements of the Proposed Vision

Based on the study's field-based findings, which identified specific skill gaps among University of Tabuk graduates in relation to the demands of the Fifth Industrial Revolution, the study recommends that the Development and Skills Development Unit at the Graduates Agency—under the Deanship of Student Affairs—collaborate with relevant colleges, such as the College of Computers and Information Technology and the College of Education and Arts, to offer targeted training programs aimed at enhancing graduates' competencies. The most important aspects and components of the proposed vision that should be available in the development programs can be identified, represented by a set of skills that are compatible with the requirements of the Fifth Industrial Revolution, as confirmed by the results of the study. These skills include:

Digital Skills Development Programs:

The fifth revolution is fundamentally based on key technologies such as artificial intelligence, the Internet of Things (IoT), biotechnology and genetic engineering, digital transaction records that are grouped together into "blocks" of information and shared securely across computers on a shared network, and quantum computing. This requires developing graduates' knowledge and skills related to digital navigation and translating them into a digital context, simulation and augmented reality applications, AI skills, robotics, IoT software installation and use, and cloud computing applications. This program focuses on equipping graduates with the following skills:

Managing cyber threats and addressing security vulnerabilities.

Designing sustainable technology projects that promote environmental efficiency.

Mastering multiple programming languages.

Using augmented reality technology in design and marketing.

Implementing technical solutions that reduce environmental impact.

Working with various data analysis tools such as Excel and Python.

Using machine learning algorithms to analyze data and make decisions.

Continuing to enhance graduates' skills in applying the best practices to ensure the security of systems and data, using various artificial intelligence tools, and developing data analysis skills to make informed decisions.

Continuous learning skills development programs:

The rapid changes of the Fifth Industrial Revolution require graduates to have the ability to adapt and embrace the concept of lifelong learning, continuously acquire new skills, keep up with the latest technologies, and foster a growth mindset, viewing challenges as opportunities for growth and learning. Adapting to a constantly evolving environment. This mindset encompasses the knowledge and skills related to developing the ability to imagine and anticipate, developing a new vision of knowledge, and transforming innovative ideas into tangible and useful contributions to prepare for this transformative future. This requires graduates to be equipped with the skills that enable them to succeed in the face of automation and innovation, focusing on training them to acquire the following skills:

Working alongside intelligent systems and robots.

Keeping pace with technological changes through self-learning and training courses.

Using digital platforms for continuous professional development.

Achieving a balance between technology and humanity in the solutions they provide.

Continuing to enhance graduates' skills in adapting to changes in technology and work methods, using modern technologies to enhance productivity and team performance, dealing flexibly with challenges in various situations, continuously learning new skills, working effectively in a rapidly evolving work environment, and being curious and exploring to utilize all resources to improve their skills.

Human Skills Development Programs:

In the context of the Fifth Industrial Revolution and the increasing prevalence of automation, emotional intelligence, empathy, deep interpersonal understanding, and the ability to form genuine human connections will be essential for fostering meaningful relationships and promoting effective teamwork. Open communication, active listening, and emotional awareness among graduates will enhance their emotional intelligence. These skills enable them to lead with empathy and build strong relationships with colleagues and clients. These skills include knowledge and skills related to adaptability to all environments, the ability to adapt to new and future roles and responsibilities, leadership skills, and responsibility toward others. They will also be introduced to professional ethics and trained in emotional intelligence skills and stress management skills in the workplace. The program focuses on training them to gain the following skills:

Comprehensive problem analysis and effective solutions.

Creative thinking to improve processes or products.

Innovating new solutions to complex challenges.

Critical thinking when evaluating available options at work.

Continuing to enhance skills in understanding and interacting positively with others' emotions, dealing with stress and pressure in the workplace, adapting to all environments and establishing positive relationships with others, demonstrating empathy for colleagues when dealing with professional or personal challenges, collaborating well with diverse teams to achieve common goals, and developing leadership skills that support the integration of innovation with sustainability and foster a culture of inclusiveness.

3-5 Mechanisms for Achieving the Proposed Vision

The successful implementation of the proposed vision requires the availability of several mechanisms, the most important of which include:

Identifying the needs and requirements of training programs in terms of material and human resources to meet the needs of graduates and keep pace with the demands of the labor market in light of the Fifth Industrial Revolution.

Developing an implementation plan, in light of the university's strategic plan, with the participation of experts from the Faculty of Education and Arts, and the Faculty of Computers and Technology, to establish mechanisms for developing the employability skills of university graduates to keep pace with the requirements of the Fifth Industrial Revolution.

Implementing training programs to develop the employability skills of university graduates, and monitoring them by participating entities.

Developing assessment tools consistent with training programs based on the knowledge and skills of the Fifth Industrial Revolution.

Introducing an employability skills course within the university's various academic programs, covering information and data on the Fifth Industrial Revolution, its technologies, and requirements.

Periodically reviewing academic programs in accordance with developments, changes, and labor market needs in light of the Fifth Industrial Revolution.

Developing career guidance and counseling mechanisms at the university, based on the experiences of developed countries.

Periodically surveying employers' views to assess their evolving needs regarding the knowledge and skills required of graduates in response to changes in the labor market.

Providing a database on the labor market and its needs, and presenting it to those responsible for developing university academic programs.

Utilizing the expertise of professionals active in the labor market to participate in developing and regularly updating academic programs, so they remain responsive to labor market demands.

Providing highly qualified trainers to participate in employment skills development programs, serving as attractive factors for graduates to enroll in these programs.

Raising university staff's awareness of the importance of real interaction with the technologies of the Fifth Industrial Revolution.

Instilling the values of digital citizenship with the technologies of the Fifth Industrial Revolution.

Employing the Internet of Things and cloud computing in academic programs and curricula.

3-6 Obstacles to Implementing the Proposed Vision:

The implementation of the proposed vision may face some obstacles, including:

Lack of awareness of the implications of the Fifth Industrial Revolution and its impact on the labor market, as well as on the required attributes of university graduates.

Resistance to change, complacency with the status quo, and fear or reluctance toward adopting new approaches or innovations.

Lack of material and human resources necessary to finance graduate employability skills development programs.

Reliance on traditional programs that are unsuitable for the developments accompanying the Fifth Industrial Revolution.

-Some graduates' adherence to traditional methods, which are not in line with the Fifth Industrial Revolution.

3-7 Ways to Address Obstacles to Implementing the Proposed Vision:

To overcome the obstacles to implementing the proposed vision, it is essential to:

Establish a permanent and ongoing plan to develop graduate employability skills development programs to keep pace with the Fifth Industrial Revolution.

Develop a matrix of graduate employability skills development programs on a permanent and ongoing basis to keep pace with the ongoing changes in the era of the Fifth Industrial Revolution.

Ensure active participation from all stakeholders and relevant parties involved in developing graduate employability skills to effectively implement this vision.

Raise awareness among graduates of the requirements of the Fifth Industrial Revolution.

Spread digital culture among university staff and utilize Fifth Industrial Revolution applications such as artificial intelligence, the Internet of Things, and others.

Provide financial and material support to develop graduates' employability skills to keep pace with the Fifth Industrial Revolution.

Recommendations

Working to link the university's academic programs to the labor market by adding field training hours to equip students with the necessary skills for the workplace before graduation.

Establishing an employment skills development unit in each college, tasked with monitoring graduates and attracting distinguished national talent to train and develop their skills in light of labor market requirements.

Working to offer academic programs that keep pace with the ongoing changes in the labor market in light of the Fifth Industrial Revolution.

Expanding the Faculty of Computers and Information Technology's programs in the fields of cyberthreat management, addressing security vulnerabilities, designing sustainable technology projects, and multiple programming languages.

Establishing a single digital platform that brings together graduates and those responsible for graduate employment skills development programs.

Bridge skills gaps and preparing graduates for new roles in the labor market, this includes providing training courses, workshops, seminars, and online meetings to raise awareness and train them on the skills and requirements of the Fifth Industrial Revolution.

Holding an annual forum at the university where employers present the employability skills required by the labor market

Study Proposals

Conducting a comparative study of employability skills development programs for graduates of international universities and utilizing them at universities in the Kingdom of Saudi Arabia.

Conducting further studies on developing the institutional performance of the University of Tabuk in light of the requirements of the Fifth Industrial Revolution.

Conducting a study to examine the relationship between the level of employability skills among University of Tabuk graduates and variables such as strategic intelligence and organizational reputation.

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