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Research Article

E-Learning in Saudi Electronic University, KSA: With Special Reference to Employability Skills and Job Opportunities for Students

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Employability skills and job opportunities are major factors for addressing employment and national development. Rapid changes and enhancements in technology have forced universities to prepare students to compete in the changing workplace environment. This study tries to analyze the impact of E-learning on the employability skills and job opportunities of students. The mixed approach method was adopted. Three hundred eighty-seven students for quantitative analysis and twenty randomly selected alumni members for qualitative study have been comprised in the sample. The study selected multivariate analysis techniques and results were tested using structural equation modeling technique in IBM-AMOS. The word cloud method helped for the qualitative part of this research. The findings of this research show the positive role of E-learning environment on the employability skills and job opportunities of the students as per the labor market demand. This study is less explored in terms of assessing the role of E-learning and employability of business students in Saudi Arabia. Hence, this research can be of great value to all the stakeholders of universities to upgrade the E-learning environment in enhancing the work skills of students.

1. Introduction

E-learning is an indispensable tool in the knowledge economy. It is attracting special attention from many universities and educational institutions toward the goal of "learner-centric" because it is highly interactive, based on multimedia, enables learners to give exchange information more easily, and provides learning content that is appropriate to the capabilities and interests of each person. For more than 40 years, E-learning has undergone a striking development that has paralleled technological breakthroughs [1].

As cited in Hadoussa [2], the success of E-learning systems cannot be evaluated using a single proxy construct (e.g., user satisfaction) or a single-item scale (e.g., overall success). The measure of E-learning systems success must incorporate different aspects of the E-learning system success construct. Despite the increasing implementation of E-learning, a negligible research has been explored on the impact of E-learning on students' job skills. As described by Tran [3], enhancing graduate employability has become one of the central focuses in many universities worldwide. Tran [3] has also argued that higher education has increasingly been tied to the needs of the economy and society. From developed countries to developing countries, there is a loud call to make university education more relevant to the workplace. There seem to be fewer debates over the central mission of higher education, with universities tending to accept neoliberal pressure and looking for ways to make their educational practices more aligned with the needs of the labor market.

Rajab [4] has mentioned that the government of Saudi Arabia has increasingly coalesced its efforts in implementing E-learning initiatives and programs into the kingdom's higher education system since April 2016, when the Council of Ministers endorsed the 2030 vision to "expand the scope of online education" in the country. Within Saudi Arabia,

the Saudi Electronic University (SEU) is committed to deliver most of its activities online. Thus, the study presents an empirical measurement to understand the role of E-learning in the employability skills and job opportunities of students as per the labor market requirements. To analyze the significance of E-learning, an online survey and interviews were conducted on students from MBA (College of Administrative and Financial Sciences (CAF), SEU) and undergraduate students (CAF, SEU).

The objectives of this study are listed below:

(1) To analyze the role of E-learning in the employability skills and expertise of students as per the Saudi labor market requirements
(2) To explore the significance of E-learning in the improvements/progress in job opportunities of SEU graduates and undergraduates in Saudi labor market
(3) To identify the factors for a better online environment that upgrade the students' job skills for their future avenues

2. Review of Literature and Hypotheses

2.1. E-Learning. Continuous technological innovation and advancements have made it difficult to find a unique definition of E-learning [5]. Various studies have defined E-learning in varied ways. Clark and Mayer [6] define E-learning as "Instruction delivered on a digital device (such as a desktop computer, laptop computer, tablet, or smartphone) that is intended to support learning." The very famous definition of E-learning given by Rosenberg [7] is that E-learning refers to the use of internet technologies to deliver a broad array of solutions that enhance knowledge and performance.

Al-Samarraie et al. [8], found that information quality, task–technology fit, system quality, utility value, and usefulness were perceived as the core factors for E-learning continuance satisfaction by both instructors and students at higher education institutions.

2.2. E-Learning in Saudi Arabia. E-learning was first widely adopted in Saudi Arabia in the early 1990s and was further supported in the following decades with the expansion of computer technology and the world wide web [9]. E-learning and distance learning technologies open up a new mode of education delivery for many Saudi educational institutions, which allows students to utilize a learning option, which may better suit their learning style, For example, students who are unable to attend traditional classes are now able to learn offsite, while Saudi women are offered more flexibility and course options while marinating their own cultural values and tradition [10].

The government of Saudi Arabia has increasingly coalesced its efforts at implementing E-learning initiatives and programs into the kingdom's higher education system since April 2016, when the Council of Ministers endorsed the 2030 vision to "expand the scope of online education" in the country [4].

2.3. Employability Skills. There are various definitions and approaches formed about employability. According to Yorke [11], employability is "the set of achievements—skills, understandings, and personal attributes—that makes graduates more likely to gain employment and be successful in their chosen occupations, which benefits themselves, the workforce, the community, and the economy." Employability is a well-established field of academic research with countless studies demonstrating the shifting discourse from human capital to human development, from skills to attributes or capabilities, and from individual career development to global citizenship and contribution to a just society [12]. As cited in Shahzadi et al. [13], there are eight skills that can be defined as employability skills. These skills include communication, teamwork, problem-solving, initiative and enterprise, planning and organizing, self-management, learning and technology, and are sector agnostic.

Caballero et al. [14] explain the varied terms of employability skills. Different terms are used to refer to the same or similar attributes. For instance, "generic skills" is used interchangeably with "core skills," "basic skills," "transferable skills," and "employability skills." Similarly, different labels are used to describe the notion of work readiness including "work preparedness," "graduate employability," "transferable skills," and "generic attributes."

There is no single or universal definition of employability; however, there is general agreement that the concept is centered on work and the ability to be employed. A person's capability to gain employment is defined as employability and depends on the knowledge, skills, and attitudes of this person [15].

2.4. Employability in Saudi Arabia. Ajina et al. [16], highlighted that as Kingdom of Saudi Arabia looks forward to ushering into a new era of diversified sustainable growth and development. It envisions creating a knowledge society through its educated citizens and employable youngsters. Employable youngsters form the backbone of any economy. To get them employed, they need specific skills, abilities, and knowledge to perform well in their area of expertise. These specific skills, abilities, and knowledge, and also the requirements from industry need to be understood to increase the possibility and probability of the youngsters getting employed and hence help in increasing the marketability of graduate students.

2.5. Employer's View about Employability. As cited in Lara-Prieto and Niño-Juárez [17], the QS Employer Insights Report 2020 indicates that problem-solving, communication, and teamwork have traditionally been essential skills employers expect from graduates as they enter the workplace worldwide. It is interesting to point out that problem-solving, resilience, and communication are three key areas where employers have felt a skills gap. In addition to the soft skills set, employers have a range of considered factors when hiring graduates, the three top priorities being professional experience, targeted disciplines, and diversity. Understanding these top recruitment priorities and the skills gaps perceived by employers allow universities to prepare their

students for the job market and improve their employability. Chavan and Surve [18], have conducted a survey of human resources managers across more than 20 companies who identified that the most lacking employability skills among newly recruited employees (from most lacking to least) are, communication … management/prioritizing …, self-confidence … and decision-making …. A similar study explored the most important employability skills (from most important to least) as integrity and honesty, problem-solving, teamwork, self-confidence, and communication skills).

2.6. Employer's View on Employability in Saudi Arabia. In the case of Saudi Arabia, Nataraja et al. [19], have undertaken a survey and interview with top employers of Saudi Arabia (Tawuniya, Saudi Telecom Company, Samba Financial Group, and Al Rajhi Bank, Saudi Basic Industries Company (SABIC), Arab-American Oil Company (ARAMCO), and Al Drees Petroleum Company, Saudi Monetary Agency, Communication and Information Technology Commission, Saudi Arabian Airlines, and Ministry of Interior, etc.) to understand their requirement. Results have confirmed the definitive requirements of the potential employers with regard to the core competencies (personal attributes professional skills (PRS) business disciplinary/specialized area knowledge, assertiveness, organized, detail-oriented, sequential vs. synchronic, quick learner, tolerant vs. strict, emotional stability, introvert vs. extrovert, communication skills (oral and written in both Arabic and English), critical thinking skills, information and technology (IT) skills, interpersonal skills, research skills, analytical skills, knowledge on business functional areas (i.e., accounting, finance, management, marketing, statistics, etc.), knowledge of business processes, knowledge on the specialized business area, knowledge of current business trends, knowledge of social, cultural, legal, ethical, and environment related to business functions, knowledge of business strategy). Required for business graduates seeking employment with entities in the economic clusters of Saudi Arabia. Eldeen et al. [20] have identified that employers from manufacturing sectors of Saudi Arabia required work ethics, specialized knowledge, and generic skills while the skills expected by employers from accounting graduates are ethics, leadership, negotiation, communication, critical reasoning and thinking, problem and decision analysis, team working, time management, and computer skill.

In addition, Iqbal and Zenchenkov [21], have brought to light a number of issues pertaining to the domain of graduate competencies and highlighted the importance of having the right skill set for Saudi organizations. Authors stated that "The nature of business organizations is highly unpredictable and hence the demand of organizations changes fast, making it necessary for hiring fresh graduates who are equipped with skills or certain special kinds of skills, in order to satisfy the changing requirements in the organization."

2.7. E-Learning and Employability. E-learning is the area that has been widely researched. However, in relation to employability skills, very few studies have been conducted on the two subjects taken together.

As cited in Jackson et al. [22], higher education institutions must understand and adapt to drivers of workplace trends that will require graduates to develop a new set of professional capabilities, including megatrends, such as evolving work arrangements, disruptive technologies, and an uncertain economic climate. Flexible working arrangements and working remotely through online access and synchronous, collaborative tools are becoming more prevalent, supporting an increasingly mobile workforce. Dyki et al. [23] stated that the development and assessment of employability skills, such as oral communication and teamwork skills continue to be possible in an online teaching environment.

The main task of modern educators is to find the mechanisms, which make online learning more enriching to the labor market requirements [24]. In the above literature review, it has been found that various studies have emphasized on E-learning and its effectiveness in higher education, as well as there are numerous research have been undertaken on employability skills and need of enhancing these job skills in tertiary education to prepare well-equipped graduates as per labor market as well. However, very few studies have been conducted on the role of E-learning in employability skills, surprisingly, no study related to E-learning's significance on employability skills of students has been found in the case of Saudi Arabia.

2.8. Hypotheses.

(H1) E-learning has a positive and significant impact on the employability skills and expertise of students as per the Saudi labor market requirements

(H1a) Self-learning skills have a positive and significant impact on the employability skills and expertise of students as per the Saudi labor market requirements

(H1b) Core skills have a positive and significant impact on the employability skills and expertise of students as per the Saudi labor market requirements

(H1c) Professional skills have a positive and significant impact on the employability skills and expertise of students as per the Saudi labor market requirements

(H2) E-learning environment impacts all the employability skills (i.e., self-learning skills, core skills, and professional skills) equally

(H3) E-learning has a positive and significant impact on the employability skills and expertise of finance students as per the Saudi labor market requirements

(H4) E-learning has a positive and significant effect on the improvements/progress in job opportunities of SEU graduates and undergraduates in Saudi labor market.

3. Materials and Methods

Ethics approval for this study was obtained from the SEU, Research Ethics Committee. The research methods for this

study were both qualitative and quantitative, and the research approach was cross-sectional in nature.

3.1. Instrument Development and Participant Details for Quantitative Analysis. For quantitative analysis, before the final survey, a pilot study was conducted on 165 students to check the questions' reliability. After this preliminary analysis, few questions were dropped, and a total of 38 items have been finalized.

Sampling method was not adopted for this study. As the population was finite, so census method has been used to choose the respondents for data collection. For collecting census data, an email had been sent to all currently enrolled students of the College of Administrative and Financial Sciences (Department of Accounting, Department of Business Administration, Department of E-Commerce and Department of Finance), in all 11 campuses of SEU during the spring term of 2022. Through online Microsoft forms, a total of 387 responses were collected out of which, only 362 responses were found to be fit and considered for the study. The responses have been taken on a 7-point Likert scale.

The design of the survey questionnaire was informed by the literature review and the research model was developed from them. Based on various research, authors have categorized employability into three broad sections: (1) self-learning skills (SLS), (2) core skills (CS), and (3) PRS. In survey design, one additional section was added, that is overall performance (OP), to check the impact of SLS, CS, and PRS on students' overall employability skills. The questionnaire was in English language and also translated into Arabic to allow the respondent to understand in their native language. The questionnaire contained total five parts: Part 1 dealt with SLS and was focused to identify motivation skills, self-confidence skills, SLS, and initiative skills. Part 2 focused on CS hence, questions were based on communication skills, presentation skills, critical thinking skills, analytical skills, IT skills, research skills, self-development and organizing skills. Part 3 explored PRS, in which business analysis and decision-making skills, teamwork skills, collaboration and multiculturism skills, time management skills, ethical values, discipline and community services skills have been asked. Part 4 consisted of the OP, where the questions were intended to assess the students' overall performance in terms of employability skills. The last part of the questionnaire was related to demographic information—age, gender, nationality, work status, year of enrollment, and students' major (see Appendix A).

3.2. Instrument Development and Participant Details for Qualitative Analysis. For qualitative analysis, a structured interview has been conducted. The students chosen for the interview were the alumnus of the university (pass-out undergraduates from Department of Finance and MBA).

A sample frame consisting of 100 such students who completed their degree recently and were in the job were taken. Out of these, 20 students were selected through simple random sampling. In-depth qualitative researches require small sample sizes and among a relatively homogenous population data saturation may occur at small sample sizes as low as 12 [25] and in most of the cases, 9–17 interviews or 4–8 focus group discussions reached saturation [26]. Hence, the sample size of 20 for the interview was deemed fit. In our case, the population was relatively homogenous and similar responses to the interview were received by the time the 14th respondent was interviewed so the population reached saturation at 14 but the remaining 6 were also interviewed to see if their responses differ significantly. So all 20 students (8 male and 12 female) selected, were interviewed. All interviews were individual and performed online through electronic resources after agreeing on a day and time.

No disputes were apparent during the entire interview process. These interviews aimed to find a deeper understanding about the effect of online learning on their job opportunities/progress in employability skills of the students as well as to explore the factors that may improve the better online environment to enhance the career readiness of students. The interview questions have been provided in Appendix B. The interviews were taken and transcribed by authors, further wordcloud method was used to analyze the interview results. The wordcloud was made only to visualize and understand the most frequent words used by the respondents during their interviews. As the word cloud is a powerful way to visualize what the respondents talk about a topic and hence this method was deployed. Further, it also helped the authors to connect the most common words used with the detailed responses to the interview.

3.3. Instrument Assessment. Regarding the collected survey data, it was first subjected to cleaning for missing values and outliers. Proper coding of the cleaned data was done further, and a few transformations on the data were also performed. Since the Likert scale is ordinal in nature and in that case the best measure for the central tendency is median rather than mean. So, to make the data set appropriate to measure the mean, we summed up the responses of the items of the constructs of each variable under study to get a summated score of the constructs for each of the respondents. After ensuring that the data set is cleaned and coded properly, the data were further subjected to further statistical treatment.

The reliability test was done through Cronbach's α method. The reliability statistics for all 38 items used in the survey. Cronbach's α value was 0.980. As per Nunnally [27], if Cronbach's α value of 0.7 or greater, the scale is a reliable one. From the results obtained, it is clear in Table 1, that the value of Cronbach's α is more than 0.6 in all cases. Hence, it proves that the scale used in the questionnaire is a reliable one. Also, the item statistics shows that if any of the items (statement) is dropped then also there is no significant change in the overall reliability score, so it was decided to retain all the items in the questionnaire (see Table 1).

Further, validity was established through face validity, content validity, and construct validity. Face validity and content validity are two forms of validity that are usually assessed qualitatively. A survey has face validity if, in the view of the respondents, the questions measure what they are intended to measure. A survey has content validity if, in the view of experts, the survey contains questions, which cover all aspects of the construct being measured. Face

Table 1: Items—total statistics.

Items	Scale mean if item deleted	Scale variance if item deleted	Corrected item—total correlation	Cronbach's α if item deleted
1. The tasks/activities done with the help of Blackboard tools help to increase my confidence and motivation	201.16	2033.559	.681	.979
2. E-learning encourages me for self-learning and continued education	200.73	2023.413	.760	.979
3. I discuss my career plans with my instructor or academic advisor	202.71	2030.349	.514	.980
4. I do not hesitate to take help from my instructors and academic advisors if I face any academic issues	201.27	2032.969	.580	.980
5. I accept my assessment's mistakes and try to improve them as per the feedback provided by instructors	200.78	2045.660	.643	.979
6. Using online learning in courses helps me to continue learning on the Internet by myself	200.62	2021.012	.806	.979
7. In my courses, the online resources (Saudi Digital Library, the reading material in Blackboard, etc.) have improved my reading skill	201.39	2015.629	.728	.979
8. The online lectures are helpful to focus on content and improving in listening skill	201.08	2018.628	.684	.979
9. I answer the questions very accurately and articulately in the online class and explain it very well	201.12	2023.717	.742	.979
10. Online projects, assignments, case studies, and quizzes are helpful in increasing my conceptual, analytical, critical thinking, and numeracy skills	200.90	2028.165	.748	.979
11. The online class and coursework activities help to understand the real business issues and solve it	201.10	2018.549	.792	.979
12. The online mode of study helps me to develop self and independent learning	200.63	2021.712	.803	.979
13. The online weekly basis plan module are very helpful to complete my tasks very easily, quickly, and efficiently	200.85	2022.598	.776	.979
14. In my courses, the use of my Blackboard tools (assignments, discussion, Wiki, and blogs) have improved my writing and presentation skills	201.00	2023.753	.793	.979
15. I can access the information by various online sources to understand and complete my tasks	200.67	2028.105	.778	.979
16. The electronic learning environment of the university is very helpful to understand and apply the new technology in my job	200.97	2013.744	.768	.979
17. The online training/seminars/lectures/workshops (provided by The Deanship of Admission and Student Affairs) are helpful to commercial awareness, business issues as well as identify the problem, analyze the case, and create a solution that increases my dec	201.17	2029.271	.712	.979
18. E-learning facilitates us to working collaboratively as well as develops my teamwork skills	201.22	2008.389	.760	.979
19. The faculties from different nationalities' collaborative teaching help me to respect diversity and multiculturalism and develop my collaboration skill	200.75	2027.439	.756	.979
20. E-learning helps me do my assessments' many tasks simultaneously efficiently and effectively within due date	200.91	2021.336	.784	.979
21. Online tasks in my courses help me to identify the performance standard that a student needs to meet the desired goal	201.09	2019.274	.802	.979
22. Writing online assignments are very helpful for discipline, honesty, and ethical conduct	200.89	2024.130	.784	.979
23. Online feedback on my Blackboard activities by course instructors are constructive in enhancing my performance	200.98	2028.869	.750	.979

(*continued*)

Table 1: Continued.

Items	Scale mean if item deleted	Scale variance if item deleted	Corrected item—total correlation	Cronbach's α if item deleted
24. In an online survey conducted by the quality department, I give very sincere and constructive feedback to my instructors	200.64	2048.055	.635	.979
25. E-learning makes it easy to interact and persuade others using various instructional formats like text, pictures, sound, and video	200.81	2019.446	.826	.979
26. The university encourages me for social and moral responsibilities or community service involvements	201.20	2016.984	.770	.979
27. The university provides the online training to write a good resume for a job and increasing my interviewing skill	201.56	2027.350	.638	.979
28. The university encourages to learn other languages in online mode	201.51	2020.683	.699	.979
29. E-learning is relevant and very useful for many occupations in different sectors	200.65	2026.732	.792	.979
30. The electronic learning mode of university is useful even at distant places and in remote areas	200.36	2045.002	.701	.979
31. The E-learning has improved my independent learning and self-organized skills	200.54	2030.221	.813	.979
32. The E-learning environment of Saudi Electronic University has increased my self-confidence	201.06	2010.057	.776	.979
33. E-learning has improved my overall communication skill	201.08	2008.830	.802	.979
34. E-learning has enhanced my analytical/problem solving and numeracy skills	200.94	2019.844	.810	.979
35. E-learning has been useful in increasing my technical skills	201.01	2017.210	.800	.979
36. E-learning has increased my presentation and collaborative skills	201.08	2013.966	.807	.979
37. E-learning has been helpful to make me disciplined, honest, and committed toward my work	200.80	2026.237	.796	.979
38. Overall E-learning environment of Saudi Electronic University has enhanced my employability skills and job opportunities	201.30	2020.448	.740	.979

validity was established during the pilot testing stage. Content validity was established by taking the reviews of two university professors and two industry experts while designing the survey instrument. Based on their feedback, necessary changes were incorporated and the survey instrument was finalized. Also, construct validity was established through convergent validity and discriminant validity. An instrument is having construct validity when it has both convergent and discriminant validity [28]. Convergent validity is based on partial correlations between each construct. Convergent validity exists when multiple items are related to one another and develop a single measure [29]. Similarly, all the indicators which are used in the measurement model must share variance with all the latent variables. The results of convergent validity for each construct are present in Figure 1.

Three approaches were utilized to confirm the convergent validity of the measurement scale. The first criteria were standardized factor loading for each item.

See in Figure 1; all of the standardized factor loadings of each item were >0.6 and significant [30].

Second, the composite reliability for each construct had to be >0.7. In this study, the composite reliability for all 22 indicators was above 0.7. The third criterion for convergent validity is based on the average variance extracted (AVE). AVE should be >0.5, which was recommended by Fornell and Larcker [31]. All 22 constructs of the measurement scale had AVE >0.50. Therefore, the scale fulfilled the criteria of convergent validity. Discriminant validity is also necessary to confirm the construct validity. The discriminant validity is shown in Table 2. To test the discriminant validity of the constructs, we compared the AVE value with the square of the construct correlation estimates. If the square root of the AVE was greater than the correlations among the constructs, this indicates that measured variables have more in common with the other constructs [31]. Table 2 indicates that the square root of the AVE value of all the constructs was more than the correlations among the constructs. It indicated that discriminant validity existed in constructs of the measurement scale.

To test normal distribution, sample Kolmogorov–Smirnov (K–S) test and Shapiro–Wilk method were used. Furthermore, the study adopted multivariate analysis techniques to check for any biases. The linearity was assessed through curve-estimated regression methods and multicollinearity was estimated using a collinearity statistics test. Also, the Harman single-factor test was administered to ensure that the data collected from the respondents are not suffering from common-method bias. The descriptive analysis has

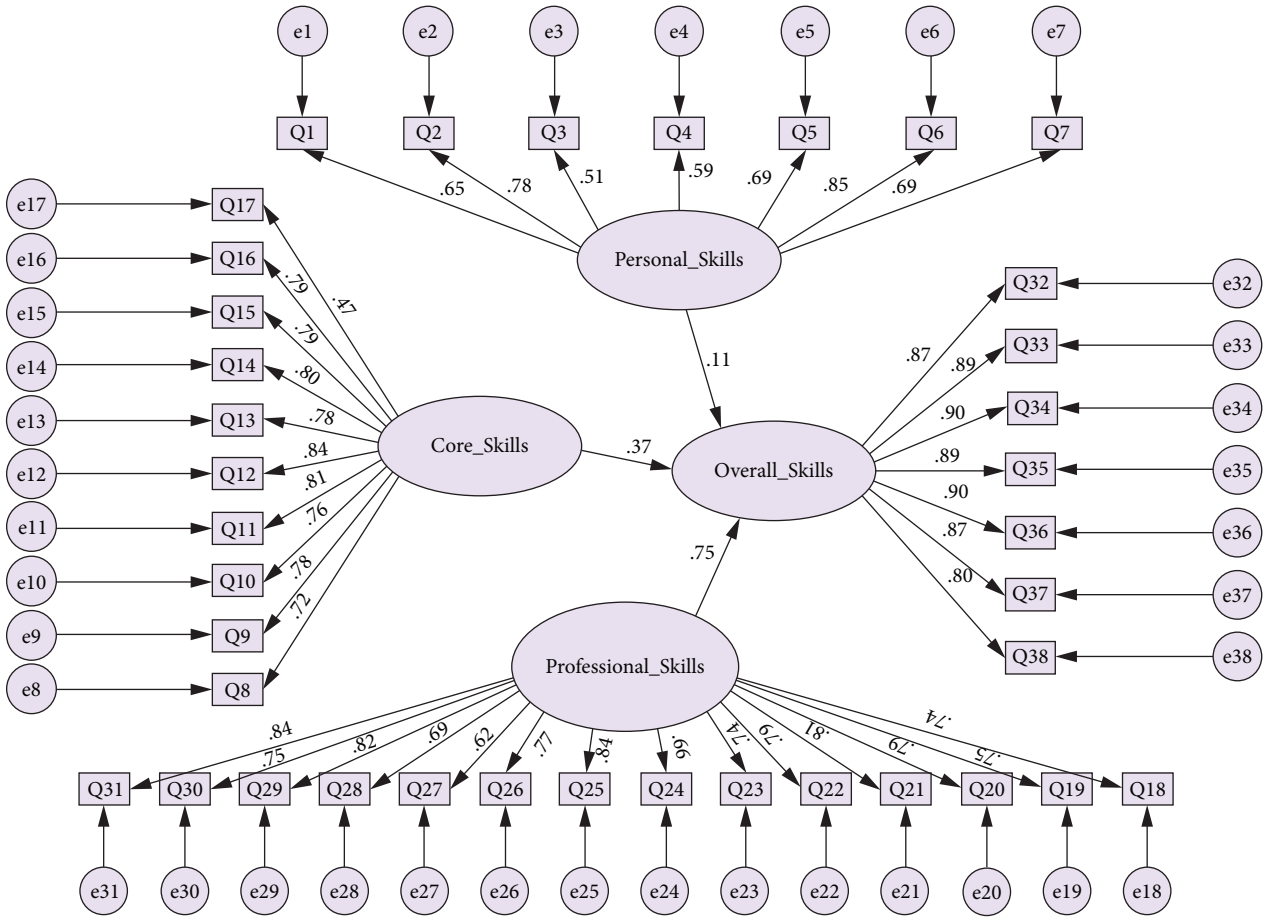

Figure 1: AMOS output of the structural model.

Table 2: Discriminant validity.

	AVE	SLS	CS	PRS	OP
SLS	0.518	0.758			
CS	0.593	368	0.727		
PRS	0.585	.402	.356	0.710	
OP	0.583	.496	.487	.374	0.726

Table 3: One-sample Kolmogorov–Smirnov test.

		PS	CS	PRS	OP
N		362	362	362	362
Normal parameters[a,b]	Mean	31.41	54.75	76.52	43.77
	Std. deviation	7.686	12.951	17.153	10.923
Most extreme differences	Absolute	.104	.152	.124	.152
	Positive	.084	.119	.105	.131
	Negative	−.104	−.152	−.124	−.152
Test statistic		.104	.152	.124	.152
Asymp. Sig. (2-tailed)		.278[c]	.062[c]	.076[c]	.059[c]

[a]Test distribution is normal. [b]Calculated from data. [c]Lilliefors significance correction.

also been done to assess the information related to demographic information of respondents' age, gender, nationality, work status, year of enrollment, and students' major. In this study, the hypotheses were tested through path analysis using structural equation modeling (SEM) technique in IBM-AMOS and the word cloud. To test the mean difference between the groups multiple comparisons using Tukey method were also applied.

4. Results

This section presents the analysis, interpretation and shares the findings of the primary data collection using the relevant statistical tools.

4.1. Normality. For testing whether the data set is normally distributed or not, there are two statistical options, namely, 1-sample K–S test and Shapiro–Wilk method. Though Shapiro–Wilk method is more powerful than the 1-sample K–S, it does not support large sample sizes. Since in this study, the total responses were 362, so 1-sample K–S was used to test the normality of the data. The 1-sample K–S test procedure compares the observed cumulative distribution function for a variable with a specified theoretical distribution, which may be normal, uniform, Poisson, or exponential. The results are given in Table 3.

From Table 3, it is evident that the test statistics for all the scores were insignificant and more than 0.05, so the data

Table 4: Coefficient.[a]

Model		Unstandardized coefficients		Standardized coefficients	t	Sig.	Collinearity statistics	
		B	Std. error	β			Tolerance	VIF
1	(Constant)	.015	1.196		.013	.990		
	PS	.066	.064	.046	1.032	.303	1.277	3.614
	CS	.285	.050	.337	5.672	.000	1.158	5.311
	PRS	.341	.039	.536	8.726	.000	2.149	5.716

[a]Dependent variable: OP.

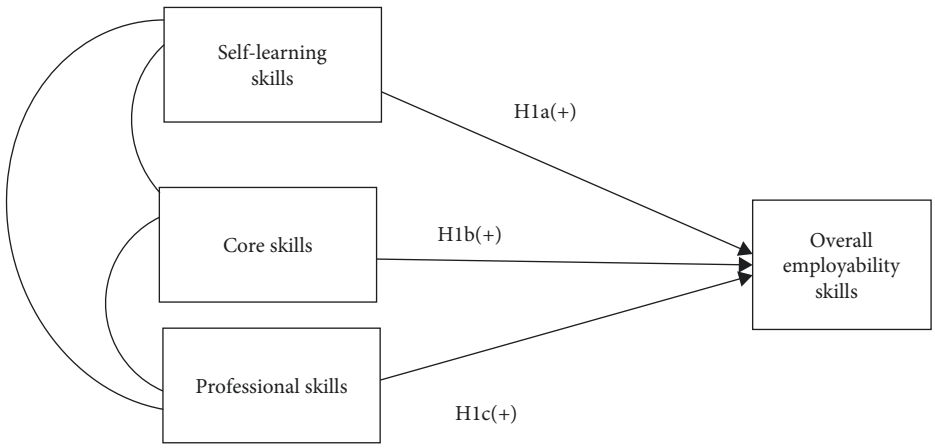

Figure 2: The hypothesized model.

have a normal distribution and hence parametric tests could be applied.

4.2. Assumptions of Multivariate Statistics. This study adopted multivariate analysis techniques. Therefore, certain assumptions of multivariate analysis were tested. First, a linearity and multicollinearity test has been applied. Linearity was assessed through curve-estimated regression methods and the F-value was found to be significant. Furthermore, multicollinearity was estimated using a collinearity statistics test. The results of the collinearity statistics test found that all explanatory variables had a variance inflation factor (VIF) between 3.614 and 5.716 in Table 4. The results also found a low correlation among the variables. Furthermore, the tolerance values were between 1.277 and 2.149; therefore, there was no multicollinearity among the variables. Furthermore, the Harman single-factor test was administered to ensure that the data collected from the respondents were not suffering from common-method bias. The test value obtained was 28.294%, which was <50% and is free of common method bias.

4.3. Descriptive Statistics. The descriptive statistics of the demographic variables suggest that most of the respondents (69.6%) belonged to the age group of 18–29 years, majorly consisting of females (65.7%) and Saudi residents (93.9%). Out of these respondents, approximately half of them (51.4%) were unemployed. However, 48.6% of the respondents were employed with the majority of them (32.6%) being in more than 3 years of employment.

Table 5: H1a: SLS on OP, H1b: CS on OP, H1c: PRS on OP.

Hypotheses	Path	Estimate	P-value	Decision
H1a	SLS ⟶ OP	0.11	.003	Supported
H1b	CS ⟶ OP	0.37	.000	Supported
H1c	PRS ⟶ OP	0.75	.000	Supported

4.4. Hypothesis Testing. Figure 2 represents the hypothesized relationships. Hypotheses 1, 2, and 3 were tested through path analysis using SEM technique in IBM-AMOS.

The first hypothesis was that E-learning has a positive and significant impact on the employability skills and expertise of students as per the Saudi labor market requirements. This hypothesis was divided into three subhypotheses. The path for the first subhypothesis was significant ($\beta = 0.11$, $p = .003$) supporting H1a. The second subhypothesis proposed a positive and significant impact of CS on the employability skills and expertise of students as per the Saudi labor market requirements. The results of the path analysis revealed that the second subhypothesis was significant ($\beta = 0.37$, $p = .000$) supporting H1b. The third sub-hypothesis proposed a positive and significant impact of PRS on the employability skills and expertise of students as per the Saudi labor market requirements. The path result shows that the third path was significant ($\beta = 0.75$, $p = .000$) supporting H1c. So based on these results (see the results in Table 5), we conclude that E-learning has a positive and significant impact on the employability skills and expertise of students as per the Saudi labor market requirements.

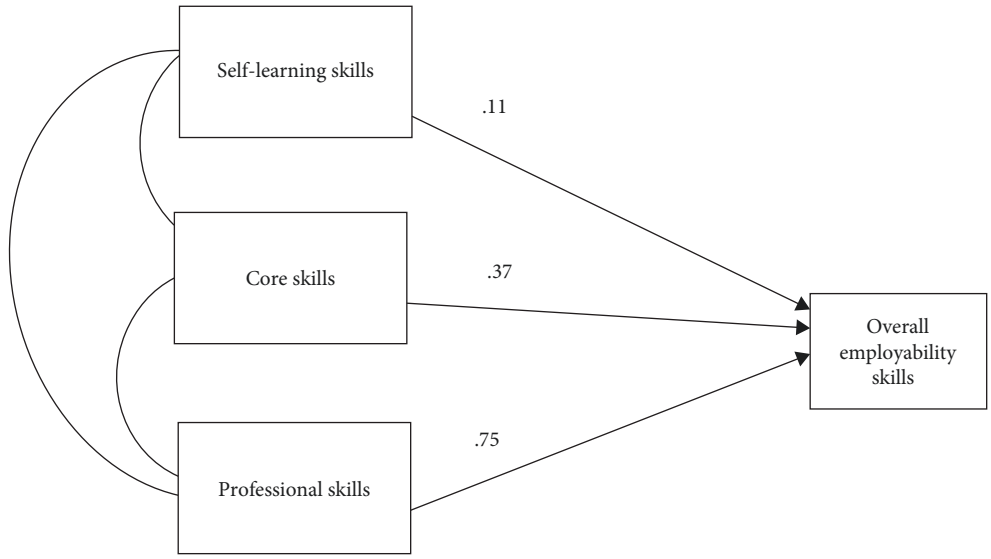

Figure 3: The hypothesized model.

Table 6: Case processing summary.

	Cases					
	Included		Excluded		Total	
	N	Percent (%)	*N*	Percent (%)	*N*	Percent (%)
OP × course currently enrolled in	362	100	0	0	362	100

The second hypothesis was that E-learning environment impacts all the employability skills (i.e., SLS, CS, and PRS) equally. The results from the path analysis show that this is not true as the path coefficients are different for different types of skills. The path coefficient for SLS is 0.11, for CS is 0.37, and for PRS is 0.75 and all are significant since $p < 0.05$ in all the cases. From the results, it is evident that the E-learning environment maximum impacts the PRS. The final structural model of the path analysis is given in Figure 3.

The third hypothesis H3 was that E-learning has a positive and significant impact on the employability skills and expertise of finance students as per the Saudi labor market requirements. For this, we calculated the mean values of the E-learning impact on employability skills across students enrolled in different courses. To test the mean difference between the groups, multiple comparisons using Tukey method was also applied. The results are presented in Tables 6–8.

The mean and the standard deviation results indicate that the impact of E-learning is having the maximum impact on the employability skills of the students enrolled in the finance course (BSBA in Finance) as mean = 46.17, SD = 8.38. To test the group differences, a post–hoc test using the Tukey method was applied. The results indicate that there exists a significant difference between the impact of E-learning on the employability skills and expertise of finance (BSBA in Finance) students and that of E-commerce (BSBA in E-commerce) students as $p < 0.05$. However, the post-hoc analysis further indicates that the difference of the impact on students enrolled in other than these courses is not significant as none of the p-values is <0.05.

Table 7: Descriptives.

Course currently enrolled in	Mean	*N*	Std. deviation
BSBA in Accounts	41.18	49	13.483
BSBA in Business Administration	44.56	161	11.234
BSBA in E-Commerce	41.60	80	10.030
BSBA in Finance	46.17	72	8.382
Total	43.77	362	10.923

Further, Hypothesis 4 was tested using the qualitative data obtained through interviews of the alumni of the university. The interviews were transcribed and a word cloud was made depicting the frequently used words and statements. The word cloud result has been presented in Figure 4.

(H4) E-learning has a positive and significant effect in the improvements/progress in job opportunities of SEU graduates and undergraduates in Saudi labor market

Result: Yes, the role of E-learning is positive and significant in the improvements/job progress of SEU graduates and undergraduates. It has been identified that in the E-learning environment, students' IT skills and collaboration skills have improved, which is useful for them in collaborating with others who are geographically apart. Also, the online assignments were very helpful in the courses that helped them in

Table 8: Multiple comparisons.

(I) Course currently enrolled in	(J) Course currently enrolled in	Mean difference (I−J)	Std. error	Sig.
BSBA in Accounts	BSBA in Business Administration	−3.375	1.764	.224
	BSBA in E-Commerce	−.416	1.961	.997
	BSBA in Finance	−4.983	2.002	.063
BSBA in Business Administration	BSBA in Accounts	3.375	1.764	.224
	BSBA in E-Commerce	2.959	1.479	.190
	BSBA in Finance	−1.608	1.533	.721
BSBA in E-Commerce	BSBA in Accounts	.416	1.961	.997
	BSBA in Business Administration	−2.959	1.479	.190
	BSBA in Finance	−4.567	1.756	.048
BSBA in Finance	BSBA in Accounts	4.983	2.002	.063
	BSBA in Business Administration	1.608	1.533	.721
	BSBA in E-Commerce	4.567	1.756	.048

Figure 4: Result of qualitative analysis.

increasing their research skills, problem-solving, analytical and critical thinking skills.

Study also depicts the result of interviews with illustrative quotations (verbatim):

The majority of alumnus ($n = 19$; 95%) experienced a positive association between E-learning environment and employability skills. Some responses are presented below:

> *It enhanced so much. I become more aware about so many thing and now I can explain more, I connect people easily. I implemented my knowledge at my workplace. And the IT skills that I learnt through e-learning was very helpful during COVID-19 time at my workplace.*

> *Definitely. My skills have been improved because of weekly online critical thinking assignments and discussion in MBA, as I worked on assignments, so in job it became easier for me to analyse, making reports and how to do research.*

> *Yes. My communication skills have increased. The SEU learning environment has improved so much my communication skills.*

Yes. Amazingly, skills have improved and I will be promoting soon as my employer agreed on my improved skills. Specially my decision making skill has been improved.

My first CEO said I don't care about your degree I care about your ambition, how can you achieve target, creating partnership with different companies, and with managers. I found that my problem solving skill and collaborating skills have been improved.

The alumnus ($n = 12$; 60%) reported that E-learning environment was helpful in getting new job or finding better opportunity. Few responses are mentioned below:

Yes, earlier I was working in private company and after completing my MBA I got job in semi government organization. Now I become more resilient, flexible, problem solving, self-reliant and now I am able to access the information, Also stress management improved, earlier I used to be panic for any problem.

Yes, as earlier I was working as a credit operator manager and now I become a business developer. So SEU helped me in improving my job.

I changed my job after my degree and it was helpful to find better job, better position and better salary. My other classmates also got better jobs and salaries after the MBA degree from SEU.

SEU has very good reputation because of e-learning environment. It definitely did, the program is very versatile. SEU provide me degree to move to better job with better salary.

5. Discussion

The major goal of this study was to investigate the impact of E-learning on the employability skills and expertise of students as well as to explore the effect on the improvements in job opportunities of graduates and undergraduates in labor market. The result of this study shows that E-learning has a positive and significant impact on the employability skills and expertise of students as per the labor market requirements. The study also identified that the E-learning environment maximum impacts the PRS. Therefore, more focus needs to be paid in improving self-learning and CS. So that students are equipped with all significant skills required by labor market. Also, the result indicates that the maximum impact was found on the employability skills and expertise of the students enrolled in the Finance course (BSBA in Finance). However, the post-hoc analysis further shows that the difference in the impact on the students enrolled in other than these courses is not much significant as all courses have a positive impact of E-learning on employability skills.

Furthermore, the results obtained from the qualitative analysis depict that E-learning has also a positive and significant effect on the improvements/progress in job opportunities of SEU graduates and undergraduates in labor market. This study gives a positive and optimistic view about E-learning environment for employability skills and improving job progress and better job opportunities for the students. "E-learning has gained a vital role to play in the future as a classroom teaching tool and self-study platform for skill development" [32]. The main task of modern educators is to find the mechanisms which make online learning more enriching to the labor market requirements [24].

As alumni members have reported during their interviews that E-learning environment has supported them in making more IT friendly, collaborative, self-managed, and more confident. Alumnus of the university has also appreciated the online critical thinking assignments and discussions that helped in increasing their research skills, information retrieval skills, analytical and problem-solving skills. The interviewees agreed that SEU's learning system has been useful in their career growth and better job opportunities in labor market. E-learning has a lot of advantages over traditional ways of learning, such as wider accessibility of learning material, fast communication, and academic collaboration [5].

Additionally, a study found that 48.6% of undergraduates are doing jobs, and admitted that online learning became very suitable and convenient for them to manage their studies and works. Ease of using E-learning technology tools through web resources, means of choice for distance education, and professional training have made the E-learning technology extremely popular. In addition, to provide comfortable resources as compared to the traditional physical classroom teaching–learning, E-learning also breaks the boundaries of time and space that limit the use of traditional teaching–learning. E-learning also allows independent learning that is free from direct observation of traditional teaching [33].

Our last objective was to identify the factors for a better E-learning environment. On the basis of empirical result, more attention should be paid in increasing students' SLS and CS. In addition, based on extensive literature review, it has been identified that obtaining employment is not a valid indicator for measuring employability; it depends, among other factors, on economics, including the supply and demand of employment, which vary over time. The role of higher education in improving employability is concerned with developing students' potential and flexibility to adapt their knowledge, skills, and attitudes to the labor market. In view of this, distance universities may have an important role in designing and implementing accreditation standards for employability [34].

Furthermore, to strengthen the E-learning environment, the alumni have suggested few points; for example, enhancement in digital library, providing more seminars/workshops by industry experienced and experts, and compulsory training to gain hands-on practical experience prior to embarking

on the job sectors. Moreover, the alumni in their interviews showed high interest in university–enterprise collaboration that is much helpful for better job opportunities. By focusing more aforementioned points, the specific skills can be increased and updated as per the rapid changes in job market needs. As cited in Tran [3], there are some specific job skills that can be learned through this collaboration are working under pressure, initiative and enterprise skill, strategic thinking, and planning; when these skills are viewed as necessary for graduates to get and retain jobs, employers' voices become powerful. Interestingly, while a university is seen as the place to develop students' employability, the results of that development can only be seen in enterprises. Moreover, the skills helping graduates to retain jobs and to develop in their careers will mainly be developed in the working context. Evidence suggests that employers value innovative, adaptable, resilient graduates with flexible enterprise skills, an enterprising mindset, and business awareness, which are mainly the outcomes of enterprise learning.

6. Conclusion and Future Research

Three hundred sixty-two students and twenty alumni members were considered for this study. The primary objective of the study was simple. The authors tried to analyze the role of E-learning in the employability skills and expertise of students. Two other objectives, exploring the significance of E-learning in the improvements/progress in job opportunities of SEU graduates and undergraduates in labor market and identify the factors for better online environment were also discussed. Study selected multivariate analysis techniques and results were tested using SEM technique in IBM-AMOS. The word cloud method helped for qualitative part of this research. The findings of the study confirm that E-learning is playing an effective role in the employability skills of university students. The study also supports that e-learning has a significant impact on the SLS, CS, and PRS. In this study, it was clear that the students think positive about job opportunities and career growth. The different tools of learning management system as well as online teaching and methods have been found helpful in students' skills and managing time with their work.

This study provides a massive opportunity for future research work. From literature review and suggestions of alumni members, authors motivate policymakers and future researchers that more attention needs to be paid on university–enterprise collaboration for compulsory training to gain hands-on practical experience. As cited in Tran [3], if the higher education sector adopts employability goals then input and collaboration from industry are essential. Towers et al. [35] have also argued that university–enterprise collaboration is recognized as being essential to promoting graduate employability and entrepreneurship. Therefore administrators and employers and other stakeholders can also be considered in future studies to enhance the career readiness of the students for their sustainable employment.

Appendix

A. Survey Questions

A.1. Self-Learning Skills.

(1) The tasks/activities done with the help of Blackboard tools help to increase my confidence and motivation
(2) E-learning encourages me for self-learning and continued education
(3) I discuss my career plans with my instructor or academic advisor
(4) I do not hesitate to take help from my instructors and academic advisors if I face any academic issues
(5) I accept my assessment's mistakes and try to improve them as per the feedback provided by instructors
(6) Using online learning in courses helps me to continue learning on the Internet by myself

A.2. Core Skills.

(1) In my courses, the online resources (Saudi Digital Library, the reading material in Blackboard, etc.) have improved my reading skill
(2) The online lectures are helpful to focus on content and improving in listening skill
(3) I answer the questions very accurately and articulately in the online class and explain it very well
(4) Online projects, assignments, case studies, and quizzes are helpful in increasing my conceptual, analytical, critical thinking, and numeracy skills
(5) The online class and coursework activities help to understand the real business issues and solve it
(6) The online mode of study helps me to develop self and independent learning
(7) The online weekly basis plan module is very helpful to complete my tasks very easily, quickly, and efficiently
(8) In my courses, the use of my Blackboard tools (assignments, discussion, Wiki, and blogs) has improved my writing and presentation skills
(9) I can access the information from various online sources to understand and complete my tasks
(10) The electronic learning environment of the university is very helpful to understand and apply the new technology in my job

A.3. Professional Skills.

(1) The online training/seminars/lectures/workshops (provided by The Deanship of Admission and Student Affairs) are helpful to commercial awareness, business issues as well as identify the problem, analyze the case, and create a solution that increases my decision-making skill

(2) E-learning facilitates us to working collaboratively as well as develops my teamwork skills
(3) The faculties from different nationalities' collaborative teaching help me to respect diversity and multiculturalism and develop my collaboration skill
(4) E-learning helps me do my assessments' many tasks simultaneously efficiently and effectively within due date
(5) Online tasks in my courses help me to identify the performance standard that a student needs to meet the desired goal
(6) Writing online assignments are very helpful for discipline, honesty, and ethical conduct
(7) Online feedback on my Blackboard activities by course instructors are constructive in enhancing my performance
(8) In an online survey conducted by the quality department, I give very sincere and constructive feedback to my instructors
(9) E-learning makes it easy to interact and persuade others using various instructional formats like text, pictures, sound, and video
(10) The university encourages me for social and moral responsibilities or community service involvements
(11) The university provides online training to write a good resume for a job and increasing my interviewing skill
(12) The university encourages to learn other languages in online mode
(13) E-learning is relevant and very useful for many occupations in different sectors
(14) The electronic learning mode of university is useful even at distant places and in remote areas

A.4. The Over All Performance (Outcome Variables).

(1) The E-learning has improved my independent learning and self-organized skills
(2) The E-learning environment of Saudi Electronic University has increased my self-confidence
(3) E-learning has improved my overall communication skill
(4) E-learning has enhanced my analytical/problem-solving and numeracy skills
(5) E-learning has been useful in increasing my technical skills
(6) E-learning has increased my presentation and collaborative skills
(7) E-learning has been helpful to make me disciplined, honest, and committed toward my work
(8) Overall E-learning environment of Saudi Electronic University has enhanced my employability skills and job opportunities

A.5. Demographic Information.

Age group
18–23 years
24–29 years
30–35 years
Over 35 years
Gender
Male
Female
Nationality
Saudi
Non-Saudi
Currently employed?
Yes
No
Status of employment
Full time
Part-time
Un-employed
Years in employment
<1 year
>1 year
>2 years
>3 years
Not applied
Course currently enrolled in
BSBA in Accounts
BSBA in Business Administration
BSBA in E-Commerce
BSBA in Finance
Year of enrollment
1st Year
2nd Year
3rd Year
4th Year

B. Interview Questions

(1) Your qualification?
(2) In which year you have completed your degree from SEU?
(3) Which branch of SEU have you studied from?
(4) Major subject(s)/subject area in which you graduated?
(5) How did you find your job after completing your degree from SEU (by campus placements, personal contacts, through company's website, or consult with an academic advisor)?
(6) Are you or have you been employed since your undergraduation/graduation? If you are/have been employed, what are/were your primary job duties related to?

(7) After qualifying for your undergraduate/graduate degree from SEU, is your professional skills have increased for your career growth. If yes, please explain what skills have been improved?

(8) How E-learning at SEU helps you perform your tasks at the workplace?

(9) Have you changed your job while studying at SEU or after completing your degree from SEU? If yes, how e-learning was helpful to find a new and better job?

(10) Do you think that e-learning at SEU has enhanced/improved your career growth?

(11) Do you think that you have adequate professional skills/expertise for your career growth?

(12) Do you think that there are job opportunities in the Saudi labor market as per your knowledge and skills? If not why?

(13) Do you think that there are job opportunities in the International labor market as per your knowledge and skills? If not why?

(14) What were the challenges faced by you in finding jobs in the Saudi labor market (if any)?

(15) In your opinion, how can SEU enhance the job skills of students so they can find the job quickly as per the market need?

(16) In your opinion, recently, what qualities/skills companies are looking for from fresh candidates?

(17) What are your career goals for the future?

(18) What are your two weaknesses that you think are challenging in getting a good job?

(19) Please give your suggestions for enhancing the role of E-learning in the Saudi Electronic University

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Additional Points

Limitations of the Study. This study encountered few limitations that can be addressed in future studies. To begin with, although the researchers received enough responses to make a good study, however, more samples were expected. The major reason behind this is a voluntarily response to a survey. Because this research work is approved by an ethical committee and respondents were not forced to fill the questionnaire. Second, the samples were randomly selected for qualitative data collection, perhaps, more measures are needed to validate these research findings. In terms of research, this might probably be the first study on the role of E-learning and employability of business students in Saudi Arabia. Hence, the generality of these results are minimal.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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