

Graduates Competence Assessment on Employability Skills: Partial Least Square-Structural Equation Modeling

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Author's contribution

The sole author designed, analysed, interpreted and prepared the manuscript.

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ABSTRACT

This article examines the necessary skills that students need as they graduate and enter the labor market, such as effective communication, relationship building and teamwork, leadership and management, and creative and critical thinking, among others. Some debate exists over the level at which college students develop their employability skills and the degree to which higher education institutions are effective at preparing their students to meet labor market requirements. Therefore, to offer additional insights into the debate, this study investigates the perceptions of College of Business Administration (CBA) students in the United States of their employability skills and how they developed those skills. Using a Likert-scale survey, 303 student-participants self-reported their skill levels in different employability skill competency areas. Confirmatory factor analysis was one of the structural equation modeling techniques used to explore and measure the skills that undergraduate students needed for employment. In the United States, higher education has become more expensive and students are graduating with considerable debt. Therefore, higher education institutions must be willing to address the issue of employability after graduation and find new and improved ways to develop their students' ES, such that abilities to conceptualize that had the strongest influence on employment.

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1. INTRODUCTION

Many countries in the world are beset by the increasingly unpredictable changes brought on by globalization. The US Department of Labor [1] noted that "we are living in a modern technology-driven, information-driven and knowledge-driven economy". The effect of technology will go beyond modern equipment and quick communication, as work and skills will be redefined and reorganized. The present age has generated opportunities along with challenges and uncertainties that affect two of our sectors: education and jobs. Lasan [2] argued that both had a lot to do with human capital that could compete effectively in a global economy. The human resource will be graduates of higher learning institutions whose educational background will be consistent with current and potential labor market (LM) criteria. The relationship and mutual activities of these two industries are therefore highly imperative.

In line with this time of globalization, higher education has been concerned with the growth of the individual, as well as the awareness, abilities and skills that any educated person can expect to have at graduation. It also aims to encourage and empower individuals to improve their capacities at the highest potential levels throughout their lives in such a way that they grow intellectually, contribute effectively to society, achieve personal satisfaction and are well prepared for work [3].

It is now becoming necessary for higher education institutions (HEIs) to adapt to the volatile labor market and make simultaneous changes in order to fulfill their task. One coordinated way to keep pace with this period of quickening change is for HEIs to provide opportunities for graduates to learn those general skills and attributes that will make them fully compatible with the real demands of the world of work of Bailey [4] and Evers [5]. Consequently, without sacrificing academic values, HEIs can demonstrate a greater commitment to improve the universal skills that graduates may bring to any working environment in which they find themselves after graduation. In other words, they are required to learn not only technical skills, but also employability skills (ES) to make them both professionals and general practitioners. Bailey [4] said that teaching and developing these

standardized skills was aligned with the changing needs of a high-performance global economy. In response, universities and governments have developed employability programs to train undergraduates and unemployed graduates in a range of skills that are popular across a variety of professions [6].

This paper aims to explore and measure employability skills and other general "soft" and life skills that are applicable to undergraduate business students attending a CBA program. As such, this research used a quantitative method by administering Likert-scale surveys to undergraduate business students at the college. The overall objective of this research is to determine how students perceive their employability skills relative to the labor market's employability requirements—in both the local and the global labor market contexts. Therefore, this research intends to add to the existing literature on the importance of developing undergraduate students' employability skills by focusing on the context of the youth unemployment problem. Specifically, this study attempted to react to the following: (1) How do graduates' competencies in employability contribute to contextual performance? (2) What are the results of the correlation of skills and performance?

2. LITERATURE REVIEW

The concept of employability within the context of learning and academic institutions is multifaceted and complex. ES pertinent to the LM have many facets. As such, examining these facets is necessary to determine best practices in higher learning to ensure that students are prepared to meet the needs of a continually changing and increasingly challenging LM. The following literature review discusses relevant research studies, professional publications, and other industry-related literature on the topic being studied, including CBA programs and ES; ES required by the LM (e.g., communication, leadership, cross-cultural, critical thinking, creative, teamwork and relationship development, and self-control flexibility and willingness to learn); and factors that affect the development of ES, such as family and other demographic/background factors, type of university and school attended, and involvement in internships and non-curricula activities.

College of Business Administration and Employability Skills:

Most universities have some level of education and training for ES; however, employers still report that newly graduated job candidates are often relatively underprepared because they lack some of the most basic skills needed to meet workplace demands and for successful employment [7]. A significant concern is the development of certain SS within business schools across the United States to ensure that new graduates can add value to a variety of public and private organizations [8,9,10,11]. Therefore, It is important to consider the value of employable skills in local and global contexts and to examine ES as potential predictors of employee performance and progress, such as the use of academic skills and test scores to predict competence and achievement in university settings. The primary issue, from both a university and employer perspective, is that the population of newly graduated young people who are finding it increasingly difficult to become adequately employed is growing [12]. Findings from Menon and Athanasoula-Reppa [13] showed that many students seek additional training during and after graduation to acquire skills and competencies related to their field of study and the general, transferable skills and knowledge needed to be competitive with others seeking similar employment opportunities. Further, recent graduates also seek employment opportunities abroad, which require further training and education to gain additional skills and knowledge [13]. In this regard, recent graduates find it necessary to take a more proactive and expansive approach to seeking employment commensurate with their undergraduate academic achievements.

Employability Skills Required by the Labor Market:

ES are also often referred to as SS, or non-technical skills, because they are in addition to the technical, “hard” skills that are learned and developed during years of academic learning and training. El Mansour and Dean [14] discussed the different types of ES and noted that today’s employers require not only technical skills and specific, job-based knowledge but also the soft, non-technical skills that are transferable from position to position, task to task, and career to career. These skills include Critical Thinking Skills (CTS), knowing “how” to learn and where to find relevant information, Communication Skills (CS) (both interpersonal and mass/media), creativity, problem-solving and situational awareness, leadership and management,

teamwork and collaboration with others, relationship building (establishing rapport, trust, and integrity within the workplace), cross-cultural competency, flexibility and adaptability, organization and planning, and even self-confidence and the ability to reflect [15,5,16]. These skills are part of a very basic foundation built on elemental skills such as literacy and numeracy. These skills, combined with technical know-how and vocational skills, are arguably the key to developing a well-balanced, efficient, and successful job candidate who will add value to the workplace [5].

Communication Skills:

CS include any writing, speaking, and listening skills that pertain to both interpersonal and group/mass communicative events. According to Hodges and Burchell [16], employers expected recent college graduates to have an already sophisticated ability to communicate in spoken and written form and may potentially test job candidates on their CS before and during the interview process. CS, such as writing memos and professional emails, preparing and giving presentations, coordinating with colleagues and exchanging information, building rapport with clients and colleagues, and more, are essential to employability because they are needed for a variety of tasks and functions in an organization [17,18]. Research from Robles [19] showed that CS are inherent to all other types of employability competencies, such as problem solving, leadership, creative and innovative thinking, and developing relationships. Essentially, the shift from the industrial to the information age has placed a much stronger emphasis on CS regarding increased efficiency and effectiveness in performance-related outcomes [19]. Therefore, the development of CS has been embedded in the higher education curricula [20].

Leadership Skills:

Leadership and Managerial Skills include a wide variety of competencies that are essential in most workplaces. Leadership Skills (LS) include the ability to delegate, empathize with subordinates, motivate employees, make important and difficult decisions, lead change, and much more [18,21]. Effective leaders also build trust in the workplace by demonstrating ethical behavior, fairness and equity, and establishing rapport [21]. LS are often argued to be based on personality and individual characteristics; however, they can be developed and nurtured in the right candidates, which is why employers seek potential employees who demonstrate the SS of effective leadership [22].

The ability to lead and manage effectively is even more essential for graduates of business programs; however, research has found gaps in the development of such skills in higher education [23].

Critical Thinking Skills: CTS are often referred to as problem-solving skills, which include the ability to research and find relevant information, collaborate and brainstorm with others, and use strategies to solve critical issues in the workplace [22]. Rosenberg et al. [24] pointed out that individuals who demonstrate effective CTS are more creative, flexible, and open to new ideas, are decisive and thoughtful, and can solve problems more readily and easily than those who lack these abilities. As such, employees with highly developed CTS has greater potential to add more value to an organization, given their efficiency at solving performance-related problems.

Creative Thinking Skills: Creative Thinking Skills (CVTS) are like critical thinking and are rooted in problem-solving abilities. Innovation, flexibility, and openness to new ideas and experiences are essential elements to building CVTS [25]. Lie et al. (2011) pointed out that innovation in the workplace has become more relevant than in the past due to the growing competitiveness of the global business climate.

In reality, most employers see creativity and the opportunity to generate new ideas as some of the most valuable qualities that workers can bring to their company. At the same time, employers do not accept that universities have educated their graduates well in this aspect.

Teamwork and Relationship Development: Collaboration and working with colleagues, superiors, and clients are central aspects of working in an organization. In addition to communication, the ability to work in teams is one of the most reported attractive qualities of newly qualified job applicants [26]. A 2000 study by the Secretary's Commission on Achieving Appropriate Skills (SCANS) suggested that the ability to engage in a team is one of the key interpersonal skills expected of 21st-century staff [27]. Participating on a team shows that an individual has developed emotional intelligence, can contribute to problem solving, and has a sense of conflict resolution [28].

Motivation and Willingness to Learn: Motivation is a core characteristic of productive

and effective employees who add value to an organization because of their aptitude for learning and their desire for success. Motivation and willingness to learn are more oriented toward employees' attitudes about their jobs and their self-concept and self-confidence, habits, and ability to work alone and demonstrate self-control [29]. Research also indicated that highly motivated employees are more eager to learn and improve, which makes them more desirable to employers because they are willing to make the effort to improve their work and performance to benefit the organization [30].

Type of School and Academic Performance: The type of university and school is an important factor when considering how to ensure and to what level students are attaining and developing their ES. Young, recent high school graduates with no higher education are the most likely to have problems gaining employment. However, recent college graduates without applicable and sought-after technical and non-technical skills also struggle to find commensurate employment after graduation [31]. Some studies found that employability skill development in the past was more oriented toward individual responsibility; however, schools are being held more accountable for their focus on developing such competencies in their students. Therefore, differences in schools can be potentially important factors in the ability to find employment opportunities after graduation, especially schools with reputable curricula and programs that help develop both technical and non-technical job-related competencies.

Research found that a strong relationship exists between the qualities and characteristics that drive an individual to perform well academically and those that also drive work-related performance [32]. According to Ng and Feldman [33], education increases ability and knowledge and simultaneously instills stronger citizen performance. Further, individuals with college degrees have also been found to attach greater importance to the altruistic rewards of working, such as helping others and developing good relationships.

Internships and Work Experience: Internships and prior work experience are becoming increasingly important for recent graduates' ability to obtain employment. Internships typically occur during the academic year prior to graduation; yet, many recent graduates are now finding it necessary to take internships shortly

after graduation [34]. Additionally, many students in the United States also find it necessary to work when attending school for either experience or financial (or both) reasons [35]. Helyer and Lee [36] pointed out that internship quality is important, and that good internships give graduates experiences that help them develop expertise and identity, entrepreneurship, and social capital. Similarly, Lowden et al. [37] studied graduate employability and found that employers, students, and graduates place the highest value on work-based learning—including work placements and internships—as effective approaches to developing and promoting graduates’ ES.

Non-Curricula Activities: Non-curricula or extracurricular activities are defined as any non-program-related activity in which a student participates that may or may not be directly related to their schooling. Involvement in organizations and outside activities shows employers that a job candidate has interests and hobbies that can further develop them into a well-rounded individual [38]. Non-curricular activities can also fall into the category of cross-curricular, which helps students develop skills within the context of different experiences [38]. Therefore, non-curricular activities that involve working with others, professional organizations, and creative endeavors, among others, can improve job candidates’ chances of employment because they indicate to the employer that candidates take the initiative and seek out opportunities to learn and develop in other fields.

3. RESULTS AND ANALYSIS

3.1 Data Collection

Data have been obtained using an investigative instrument by a survey instrument. The survey questions on Employability Skills (ES) and where such skills were gained (CBA program, non-program, or a combination of both) were

developed using a Likert scale in which participants chose one out of five options. Participants indicated whether they had very high competence, high competence, moderate competence, low competence, or very low competence about specific ES. Additionally, participants indicated whether they gained specific ES almost exclusively from the program, mostly from the program, equally from the program and a non-program, mostly from a non-program, or almost exclusively from a non-program. Important demographics/background data were also collected, such as gender, age, school, major, internships, extracurricular activities/organizations, GPA, work experience, location, and others.

3.2 Sample Size Profile

A total of 303 surveys were returned and the sample represents students at universities from across the United States. This sample size fulfills the necessary condition of required sample size i.e., 205 respondents by considering 99% confidence level, standard deviation of 0.5, and ±1% margin of error. Therefore, our sample of 303 meets the required minimum sample size for sampling adequacy (Westland, 2010). The demographic profile of the respondents was given by Table 1 and Table 2. For diagnostic purposes, the specification of the questionnaire, the indicators and the supplementary data relevant to this article can be found at <https://drive.google.com/file/d/1QQhHQJk9hgAmX08HbhMcocA-ktbCGtf/view?usp=sharing>.

When data are collected through self-report surveys, and independent and dependent variables are obedient from the same person, the common method variance should also be examined [39]. So, as mentioned in the literature, we have adopted multiple remedies to this problem. First, this study used different cover for each measurement scale to achieve psychological separation among respondents.

Table 1. Respondent's profile

Demographic characteristic	N	Mean	Std. Deviation
How old are you?	303	21.0594	3.67601
How many HOURS of internship have you COMPLETED?	303	109.3465	232.81783
How many student organizations are you a member of?	303	2.5446	1.93191
How many total MONTHS of work experience?	303	18.0099	18.47721
What is your current, overall GPA (tick one)?	303	1.81	0.923

Table 2. Respondent's profile

Demographic profile	Items	Frequency	Percent
What is your enrolment status?	Freshman	84	27.7
	Sophomore	89	29.4
	Junior	82	27.1
	Senior	48	15.8
What is you Gender?	Male	97	32.0
	Female	203	67.0
	Other	3	1.0
Are you currently employed?	Yes	227	74.9
	No	76	25.1
What is your Major?	Accounting	88	29.0
	Economics	39	12.9
	Human Resource	14	4.6
	Finance	26	8.6
	Management	60	19.8
	Management information System	8	2.6
	Marketing	21	6.9
	Public Administration	4	1.3
	Health Management	7	2.3
	Other	36	11.9
	Is your university a public or private institution?	Public	232
Private		45	14.9
Not sure		26	8.6

3.3 Data Analysis

Second, a statistical method, factor analysis was adopted, entering all principal constructs into a principal component factor analysis. Common method bias exists when a single factor emerges from the analysis of the factor [39]. In SPSS, we performed a factor analysis with rotation of varimax; the analysis returned a 9-factor solution explaining 65.314% of the variance. The first factor explained only 27.71% of variance, thus indicating method bias, in this present study, is not a severe problem. First, we used SPSS version 25.0 to process the descriptive statistics and factor analysis on the collected data and to assess the demographic profile of the sample and the internal consistency of the constructs. Then, data were analyzed using Partial Least Squared-Structural Equation Modeling (PLA-SEM) technique to determine the underlying latent factors from the observed variables. The Partial Last Squares (PLS) were evaluated using Smart PLS 3.2.8 Software. We have validated the measuring model and then studied the structural model [40]. A Bootstrapping procedure (1000 resamples) was used for checking the importance of the route coefficients and loadings [40]. Since structural equation modeling (SEM) calls on data not to violate the normality assumptions. Therefore, a partial least squares

(PLS) based SEM was used for this study. PLS is a well-established technique for estimating path coefficients in structural models and has been widely used in several research studies. Due to its ability to model latent constructions under conditions of non-normality and small sample sizes, the PLS technique has become more widely common in marketing and management research in the last decade [40]. Different software packages have been used to make the SEM, see El-Sheikh, Abonazel & Gamil [41].

3.4 Measurement Model

The measurement model has been tested for convergent validity and Construction Reliability. This was assessed as in Table 3 by outer loadings, composite reliability (CR), and average variance extracted (AVE). This table shows that all factor loading of items reached the minimum value of 0.6 [42]. Composite reliability values, which reflect the degree to which the latent construct is indicated by the build indicators, exceeded the recommended 0.7. While the extracted average variance, which represents the overall variance in the indicators accounted for it by the latent variables, surpassed the recommended value of 0.5 [40].

Table 3. Results of measurements model - validity and reliability for constructs

Constructs	Questions	Codes	Loading Factors	Average Variance Extracted	Composite Reliability			
Factor 1 Ability to conceptualize, Visioning, Lifelong Learning, Creative & Innovation Change.	Competence - 51. Initiating change to enhance productivity.	Q27_1_1	0.737	0.954	0.654			
	Competence - 52. Keeping up to date with external realities related to your company's success.	Q27_1_2	0.807					
	Competence - 53. Reconceptualizing your role in response to changing corporate realities.	Q27_1_3	0.787					
	Competence - 54. Conceptualizing a future for the company.	Q27_1_4	0.804					
	Competence - 55. Providing innovative paths for the company to follow for future development.	Q27_1_5	0.820					
	Competence - 56. Combining relevant information from a number of sources.	Q27_1_6	0.831					
	Competence - 57. Applying information to new or broader contexts.	Q27_1_7	0.838					
	Competence - 58. Integrating information into more general contexts.	Q27_1_8	0.811					
	Competence - 59. Keeping up to date on developments in the field.	Q27_1_9	0.805					
	Competence - 60. Gaining new knowledge in areas outside the immediate job.	Q27_1_10	0.842					
	Competence - 61. Gaining new knowledge from everyday experiences.	Q27_1_11	0.812					
Factor 2 Decision Making, & Problems Solving.	Competence - 2. Prioritizing problems.	Q3_1_2	0.721	0.889	0.535			
	Competence - 3. Solving problems.	Q3_1_3	0.741					
	Competence - 4. Contributing to group problem solving.	Q3_1_4	0.724					
	Competence - 5. Identifying essential components of the problem.	Q3_1_5	0.709					
	Competence - 6. Sorting out the relevant data to solve the problem.	Q3_1_6	0.715					
	Competence - 8. Assessing long-term effects of decisions.	Q3_1_8	0.745					
	Competence - 9. Making decisions based on thorough analysis of the situation.	Q3_1_9	0.763					
	Factor 3 Risk taking, & Oral Communication	Competence - 22. Taking reasonable job-related risks.	Q25_1_2			0.774	0.927	0.584
		Competence - 23. Identifying potential negative outcomes when considering a risky venture.	Q25_1_3			0.719		
Competence - 24. Monitoring progress toward objectives in risky ventures.		Q25_1_4	0.783					
Competence - 25. Recognizing alternative routes in meeting objectives.		Q25_1_5	0.731					
Competence - 26. Conveying information one-to-one.		Q25_1_6	0.777					
Competence - 27. Communicating ideas verbally to groups.		Q25_1_7	0.742					

Constructs	Questions	Codes	Loading Factors	Average Variance Extracted	Composite Reliability
	Competence - 28. Making effective business presentations	Q25_1_8	0.817		
	Competence - 29. Making impromptu presentations.	Q25_1_9	0.786		
	Competence - 30. Writing reports.	Q25_1_10	0.743		
Factor 4	Competence - 12. Recognizing the effects of decisions made.	Q23_1_2	0.685	0.884	0.522
	Competence - 13. Establishing the critical events to be completed.	Q23_1_3	0.728		
Organization & Time Management	Competence - 16. Integrating strategic considerations in the plans made.	Q23_1_6	0.752		
	Competence - 17. Revising plans to include new information	Q23_1_7	0.697		
	Competence - 18. Setting priorities.	Q23_1_8	0.739		
	Competence - 19. Allocating time efficiently.	Q23_1_9	0.715		
	Competence - 20. Managing/ overseeing several tasks at once.	Q23_1_10	0.739		
Factor 5	Competence - 43. Supervising the work of others.	Q24_1_3	0.844	0.945	0.681
	Competence - 44. Giving direction and guidance to others.	Q24_1_4	0.830		
Leadership & influence, Coordinating	Competence - 45. Delegating work to peers.	Q24_1_5	0.828		
	Competence - 46. Delegating work to subordinates.	Q24_1_6	0.802		
	Competence - 47. Coordinating the work of peers.	Q24_1_7	0.852		
	Competence - 48. Coordinating the work of subordinates.	Q24_1_8	0.825		
	Competence - 49. Providing novel solutions to problems.	Q24_1_9	0.815		
	Competence - 50. Adapting to situations of change.	Q24_1_10	0.805		
Factor 6	Competence - 33. Using proper grammar, spelling, & Punctuation.	Q26_1_3	0.715	0.931	0.629
	Competence - 34. Listening attentively.	Q26_1_4	0.792		
Interpersonal Relation, Listing.	Competence - 35. Responding to other comments during a conversation.	Q26_1_5	0.778		
	Competence - 36. Working well with fellow employees.	Q26_1_6	0.818		
	Competence - 37. Relating well with supervisors.	Q26_1_7	0.814		
	Competence - 38. Establishing good rapport with subordinates.	Q26_1_8	0.790		
	Competence - 39. Empathizing with others.	Q26_1_9	0.807		
	Competence - 40. Understanding the needs of others.	Q26_1_10	0.825		
Factor 7	Competence - 62. Maintaining a high energy level.	Q28_1_1	0.783	0.935	0.705
	Competence - 63. Functioning at an optimal level of performance.	Q28_1_2	0.853		
Motivation personal Strengths	Competence - 64. Responding positively to constructive criticism.	Q28_1_3	0.870		
	Competence - 65. Maintaining a positive attitude.	Q28_1_4	0.842		
	Competence - 66. Functioning well in stressful situations.	Q28_1_5	0.864		
	Competence - 67. Ability to work independently	Q28_1_6	0.822		

Constructs	Questions	Codes	Loading Factors	Average Variance Extracted	Composite Reliability
Factor 8 Written Communication	Competence - 31. Writing external business communication.	Q26_1_1	0.903	0.914	0.842
	Competence - 32. Writing internal business communication.	Q26_1_2	0.934		
Factor 9 Managing Conflict	Competence - 41. Identifying sources of conflict among people.	Q24_1_1	0.902	0.905	0.826
	Competence - 42. Resolving conflicts.	Q24_1_2	0.916		

Table 4. Latent variance correlations (Root square of AVE)

Competent	Competent	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9
Factor 1	0.835	0.809								
Factor 2	0.699	0.418	0.731							
Factor 3	0.839	0.632	0.63	0.764						
Factor 4	0.741	0.529	0.718	0.654	0.723					
Factor 5	0.897	0.788	0.526	0.698	0.563	0.825				
Factor 6	0.848	0.769	0.511	0.712	0.555	0.803	0.793			
Factor 7	0.837	0.771	0.487	0.602	0.532	0.746	0.743	0.839		
Factor 8	0.749	0.585	0.434	0.651	0.457	0.583	0.6	0.529	0.918	
Factor 9	0.834	0.728	0.467	0.608	0.484	0.774	0.689	0.646	0.641	0.909

The next step was to determine the discriminating validity, referring to the degree to which the indicators are not a representation of any other variables; this is demonstrated by the weak correlations between the measure of interest and the measurements of other constructs.

Table 4 shows that the square root of every other construct 's AVE (diagonal values) is greater than its corresponding coefficients of correlation pointing to sufficient discriminant validity [43].

3.5 Structural Model

Hair et al. [40] suggested using a bootstrapping method with a resample of 1000 to evaluate the

structural model to look at the R², beta, and corresponding t-values. In addition to these basic steps, they also suggested that researchers should report on the predictive significance (Q²) and the effect sizes (f²).

First, we looked at Path Coefficient- Hypotheses Test. We used p value to test if the relation between coefficient of latent variables are significant or not. This mean that, we accept the association if 95% of the time this relation is works. In different words, 5% of the time this relation might not works. From Table 5, we found that the relationship for all factors are high significant with Competence at 99.9%. Thus, all factors were supported.

Table 5. Structural estimates of the research hypotheses

Relationship	Standard Beta	Standard Deviation	T Statistics	P Values	Decision
Competent →Factor 1	0.835	0.025	32.864	0	Supported
Competent →Factor 2	0.699	0.058	12.045	0	Supported
Competent →Factor 3	0.839	0.031	27.485	0	Supported
Competent →Factor 4	0.741	0.054	13.796	0	Supported
Competent →Factor 5	0.897	0.013	71.458	0	Supported
Competent →Factor 6	0.848	0.019	44.831	0	Supported
Competent →Factor 7	0.837	0.027	31.131	0	Supported
Competent →Factor 8	0.749	0.035	21.315	0	Supported
Competent →Factor 9	0.834	0.023	36.496	0	Supported

Table 6. R² of the endogenous latent variable and its effect size f² for structural model

Constructs Relationship	R ² value	Results	f ² value	Effect Size
Factor 1	0.697	substantial	2.302	Large
Factor 2	0.488	substantial	0.954	Large
Factor 3	0.704	substantial	2.381	Large
Factor 4	0.55	substantial	1.22	Large
Factor 5	0.805	substantial	4.14	Large
Factor 6	0.719	substantial	2.558	Large
Factor 7	0.701	substantial	2.34	Large
Factor 8	0.561	substantial	1.279	Large
Factor 9	0.695	substantial	2.283	Large

Table 7. Predictive relevancy Q² for structural model

Constructs Relationship	SSO	SSE	Q ² (=1-SSE/SSO)	Predictive Relevancy
Factor 1	3,333.00	1,926.50	0.422	acceptable
Factor 2	2,121.00	1,609.14	0.241	acceptable
Factor 3	2,727.00	1,686.80	0.381	acceptable
Factor 4	2,121.00	1,565.14	0.262	acceptable
Factor 5	2,424.00	1,191.40	0.508	acceptable
Factor 6	2,424.00	1,409.40	0.419	acceptable
Factor 7	1,818.00	987.656	0.457	acceptable
Factor 8	606	337.34	0.443	acceptable
Factor 9	606	277.823	0.542	acceptable

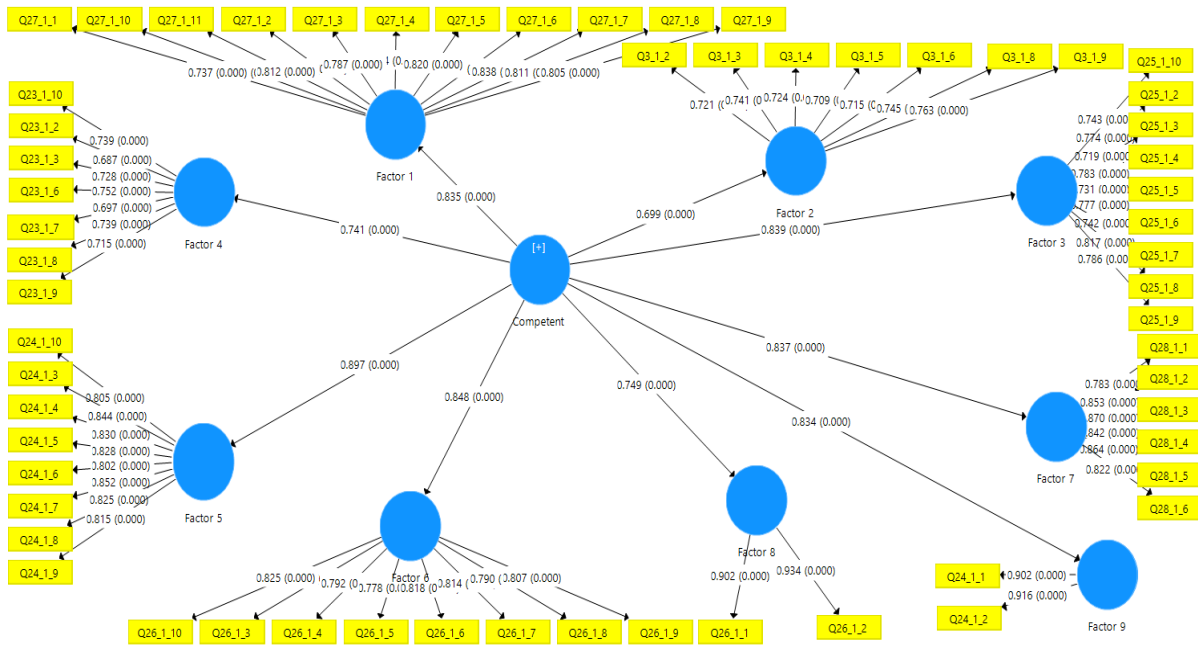


Fig. 1. Assessment of measurement model for graduates' competent model

Second, Coefficient of Determination R^2 . The acceptable level of R^2 value depends on the research context [40] and Falk and Miller [44] propose an R-squared value of 0.10 as minimum acceptable level. Meanwhile, Chin [45] suggests that the R-squared value of 0.67, 0.33, and 0.19 in PLS-SEM can be considered as substantial, moderate, and weak, respectively. The R^2 values, in Table 5, of the nine factors are higher than the 0.67 value that Chin [45] suggests would indicate a substantial model.

Third, Effect Size f^2 indicates the relative influence of dependent latent variable on endogenous latent variable(s) by R-squared changes [45]. It is measured as the increase of the latent variable to which the direction is related in R-squared, relative to the proportion of unexplained variance in the latent variable [45]. According to Cohen [46], the effect size value above 0.35 can be considered to be high effect size, while f^2 in the range of 0.15 to 0.35 is medium effect size, and it will be small if it is in the range of 0.02 to 0.15. If the f^2 value is less than 0.02, then we take NO effect size into consideration. Table 6 shows that both relations were greatly affected in the case of R^2 and f^2 sizes.

Forth, Predictive Relevancy Q^2 Using PLS for prediction purposes requires a measure of predictive capability. The suggested approach to test predictive relevance is called the Blindfolding

procedure. The procedure will remove data from the data set based on a pre-determined distance value called D. The D can be any number from 5-10 [45]. The only requirement is that the sample size n divided by D should be a round number. For this study, Q^2 was obtained using cross-validated redundancy procedures. A Q^2 above 0 indicates the model has predictive significance, while a Q^2 below 0 indicates the model loses predictive relevance. As shown in Table 7, Q^2 suggests appropriate predictive relevance for all endogenous variables.

4. DISCUSSION AND CONCLUSION

The findings from this study indicate that a considerable need exists for universities to embed ES development into their programs and curricula. Specifically, these competencies should be embedded in a formal manner to ensure that student development in these areas can be measured, and improvement/attainment can be shown over time. More young people are attending higher education institutions than ever before. As such, the LM has become increasingly competitive for college graduates. In the past, a college degree was typically all that a young person needed to enter the working world; however, today, a college degree simply does not hold as much weight in most labor markets. Adding to this concern is that, in the United States, higher education has become more expensive and students are graduating with

considerable debt. Therefore, higher education institutions must be willing to address the issue of employability after graduation and find new and improved ways to develop their students' employability skills.

CONSENT

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

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COMPETING INTERESTS

Author has declared that no competing interests exist.

REFERENCES

1. US Department of Labor, Futurework: Trends and challenges for work in the 21st century; 1999. Available:http://digitalcommons.ilr.cornell.edu/cgi/viewcontent.cgi?article=1066&context=key_workplace Accessed 15th November 2005.
2. Lasan DB. Curricular balance in education. *Educators Speak*; 2000.
3. Fox P, Hundley S. The importance of globalization in higher education. *New Knowledge New Era Globalization*. 2011;10:17972. DOI: 10.5772/17972
4. Bailey T. Changes in the nature of work: Implications for skills and assessment, in H. O'Neill, H (Ed.). *Workforce readiness, competencies and assessment*. Los Angeles, CA: Lawrence Erlbaum Associates. 1997;27-45.
5. Evers FT, Rush JC, Berdrow I. *The Bases of Competence. Skills for Lifelong Learning and Employability*. Jossey-Bass Publishers, 350 Sansome Street, San Francisco, CA 94104; 1998.
6. Brewer L. *Enhancing youth employability: What? Why? and How? Guide to core work skills*, ILO. 2013;13:1.
7. Tymon A. The student perspective on employability. *Studies in Higher Education*. 2013;38(6):841-856.
8. Jackson D. Student perceptions of the importance of employability skill provision in business undergraduate programs. *Journal of Education for Business*. 2013;88(5):271-279.
9. Al-Alawneh MK. Measuring students' employability skills as they are perceived at Yarmouk University. *Canadian Social Science*. 2014;10(1):10-20.
10. Ogbeide GCA. *Employability skills and students' self-perceived competence for careers in hospitality industry (Doctoral dissertation, University of Missouri--Columbia)*; 2006.
11. Rothwell A, Arnold J. Self-perceived employability: Development and validation of a scale. *Personnel Review*. 2007;36(1):23-41.
12. Iqbal A, Zenchenkov M. Market Tested Business Education: Corporate sector perceptions of Saudi graduates competencies. *Asia-Pacific Journal of Cooperative Education*. 2014;15(2):91-106.
13. Menon ME, Athanasoula-Reppa A. Managing graduate unemployment: The case of education students in Cyprus. *Higher Education, Skills and Work-Based Learning*. 2017;7(2):168-178.
14. El Mansour B, Dean JC. Employability skills as perceived by employers and University Faculty in the Fields of Human Resource Development (HRD) for entry level graduate jobs. *Journal of Human Resource and Sustainability Studies*. 2016;4(01):39.
15. Cranmer S. Enhancing graduate employability: best intentions and mixed outcomes. *Studies in Higher Education*. 2006;31(2):169-184.
16. Hodges D, Burchell N. Business graduate competencies: Employers' views on importance and performance. *International Journal of Work-Integrated Learning*. 2003;4(2):16.22.
17. Shah M, Nair CS. Employer satisfaction of university graduates: Key capabilities in early career graduates. *Teaching and Learning Forum*. 2011;3:1-10.
18. Nonthacumjane P. Key skills and competencies of a new generation of LIS professionals. *IFLA Journal*. 2011;37(4):280-288.

19. Robles MM. Executive perceptions of the top 10 soft skills needed in today's workplace. *Business Communication Quarterly*. 2012;75(4):453-465.
20. Yorke M, Knight PT. Learning & employability. Embedding employability into the curriculum. 2004;3(1-28).
21. Bass BM. Bass and Stogdill's handbook of leadership theory, research, and managerial applications (3rd ed.). New York: The Free Press; 1990.
22. Saunders V, Zuzel K. Evaluating employability skills: Employer and student perceptions. *Bioscience Education*. 2010;15(1):1-15.
23. Jackson D. Factors influencing job attainment in recent Bachelor graduates: evidence from Australia. *Higher Education*. 2014;68(1):135-153.
24. Rosenberg S, Heimler R, Morote ES. Basic employability skills: A triangular design approach. *Education & Training*. 2012;54(1):7-20.
25. Rampersad G, Patel F. Creativity as a Desirable Graduate Attribute: Implications for Curriculum Design and Employability. *Asia-Pacific Journal of Cooperative Education*. 2014;15(1):1-11.
26. Tomlinson M. Graduate employability: A review of conceptual and empirical themes. *Higher Education Policy*. 2012;25(4):407-431.
27. US. Department of Labor. The Secretary's Commission on Achieving Necessary Skills (SCANS). (1991). What work requires of schools: A SCANS report for America; 2000.
28. Farh CI, Seo MG, Tesluk PE. Emotional intelligence, teamwork effectiveness, and job performance: The moderating role of job context. *Journal of Applied Psychology*. 2012;97(4):890.
29. Ahmed AF. The employability of graduates in competitive organizations. *Business Intelligence Journal*. 2009;2(2):288-318.
30. Bourner T, Greener S, Rospigliosi A. Graduate employability and the propensity to learn in employment: A new vocationalism. *Higher Education Review*. 2011;43(3):5-30.
31. Lerman RI. Are employability skills learned in US youth education and training programs?. *IZA Journal of Labor Policy*. 2013;2(1):6.
32. Briggeman B, Henneberry SR, Norwood FB. How do employers Assess job candidate attributes? *NACTA Journal*. 2007;15-21.
33. Ng TW, Feldman DC. Age, work experience, and the psychological contract. *Journal of Organizational Behavior*. 2009;30:1053-1075.
34. Knouse SB, Fontenot G. Benefits of the business college internship: A research review. *Journal of Employment Counseling*. 2008;45(2):61-66.
35. Andrews J, Higson H. Graduate employability,' soft skills' versus 'hard' business knowledge: A European study. *Higher Education in Europe*. 2008;33(4):411-422.
36. Helyer R, Lee D. The role of work experience in the future employability of higher education graduates. *Higher Education Quarterly*. 2014;68(3):348-372.
37. Lowden K, Hall S, Elliot D, Lewin J. Employers' perceptions of the employability skills of new graduates. London: Edge Foundation; 2011.
38. Safta CG. Cross-curricular competencies-access path to professional development. *Procedia-Social and Behavioral Sciences*. 2015;203:348-354.
39. Podsakoff PM, MacKenzie SB, Lee JY, Podsakoff NP. Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*. 2003;88(5):879-903.
40. Hair JF, Hult GTM, Ringle C, Sarstedt M. A primer on partial least squares structural equation modelling (PLS-SEM). Los Angeles: Sage Publications; 2013.
41. El-Sheikh AA, Abonazel MR, Gamil N. A review of software packages for structural equation modeling: A comparative study. *Applied Mathematics and Physics*. 2017;5(3):85-94.
42. Chin WW, Peterson RA, Brown SP. Structural equation modeling in marketing: some practical reminders. *Journal of Marketing Theory and Practice*. 2008;16(4):287-298.
43. Fornell C, Larcker DF. Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*. 1981;18(1):39-50.
44. Falk RF, Miller NB. A Primer for Soft Modeling. University of Akron Press; 1992.

45. Chin WW. How to Write Up and Report PLS Analyses. Handbook of Partial Least Squares, Chapter 28. Springer Handbooks of Computational Statistics. 2010;655-690.
46. Cohen J. Statistical power analysis for the behavioral sciences (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc; 1988.

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