THE INSTITUTIONAL ATTRIBUTES AND EMPLOYABILITY READINESS AMONG ENGINEERING GRADUATES IN THE HIGH EDUCATION INSTITUTE'S IN OMAN

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ABSTRACT

The aim of this study is to investigate the effects of Institutional attributes on the employability readiness of the engineering graduates of the High Education Institutes in Oman. The study adopted a self-directed structured questionnaire was distributed to a sample of engineering students and graduates from a number of colleges and universities. The study used structural equation modelling (SEM) for analysing the collected data. The findings of the statistical analysis of the study showed that Omani graduates signify the contribution of the HEIs Policies, Classroom environment, the implementation of Student Centric Approach strategies on the graduates' readiness for employability skills attainment. Also, the findings of the study recommend HEIs to improve their teaching quality, overall Syllabus and Course Curriculum, assessment strategies, and teaching materials to enhance their graduates with required graduates' readiness for employability skills. Specifically, study findings showed Institutional attributes factor could high have an influence on the Readiness for Employability of the graduates in Oman when the HEIs reform effectively the Institution-Related attributes factors analysed in the research study. Finally, the study's implementations and recommendations could be transferred to the Gulf and Arab or other countries' contexts having similar settings of HE systems and similar issues of skills gap and employability concern of their graduates.

Keywords: Institutional Attributes, Employability Readiness, Engineering Graduates, High Education Institutes & Oman.

INTRODUCTION

Graduate readiness for employability is the main driver for HEIs all over the world. To achieve this objective, the HEIs have added a range of employable readiness required competencies including soft, and generic technical skills-based learning outcomes that are integrated into their degree curricula programmes hoping to improve their graduate readiness for employability. Moreover, many HEIs including Oman universities and colleges have also added internships and work placements modules aiming to enhance graduate readiness for employability. However, the feedback coming from work providers still have some concern about the readiness for employability of the newly recruited graduates. To understand the lack of the HEIs graduate's attainment of employability skills, we will need to consider other critical factors which influence graduate readiness for employability.

Since the last two decades of the 20th, governments and employers' groups have put high pressure at HEIs to provide evidence of the effectiveness of their higher educational programmes in providing ready to work graduates. From academic perspective, there is a concern about the effectiveness of HEIs used strategies in developing transferable employability skills into their students. One study had analysed the ways universities deliver graduate employability required skills and their methods of embedded them into their programme curricula. He also analysed three influencing factors which affects graduate employability. Those factors are the human capital factors, the social capital factors and the individual behaviour factors (Holmes, 2013).

A new model of graduate readiness for employability was designed consisted of human capital, social capital, and individual behaviours and their attributes towards employability (Clarke, 2018). This frame work of Readiness for Employability was improved to include besides human capital, social capital, and individual attributes to also include institution-related attributes and active learning attributes (Al Hinai, Bhuiyan, & Husin, 2020).

Therefore, this study aims to determine the effect of Institution-Related attributes factors on the graduates' readiness for employability to improve the quality of engineering education of the HEIs in Oman which consequently, will enable the engineering colleges to produce graduates suitable for employment. More specifically, this study aims to answer the following question.

LITERATURE REVIEW

There is a concern about the effectiveness of HEIs used strategies in developing transferable employability skills into their students. One study analysed the ways universities deliver graduate employability required skills and their methods of embedded them into their programme curricula to determine three influencing factors which affects graduate employability. Those factors are the human capital factors, the social capital factors and the individual behaviour factors. The proposed employability frame work consisted of human capitals; skills, competencies and work experience, social capital; network, social class and university ranking, and the individual behaviour; career self-management and career building skills (Holmes, 2013). Other types of research emphasis essentially at self-perception for graduate's employment success. They have different definition for employability to be based in the individual's perception of the possibility of getting and sustaining employment (Vanhercke, De Cuyper, Peeters, & De Witte, 2014). Thus, individual perception of employability is connected to what the graduate himself do to attain competencies including his abilities, capacities and skills along with his behavioural attitude towards employment and future career.

Also, a higher integrated frame work was designed (Clarke, 2018). This new model of graduate readiness for employability frame work combined four influencing factors for graduate

employability consisted of human capital, social capital, and individual behaviours and their attributes towards employability taking into account the labour market contribution which in total influence the graduate readiness for employment (Clarke, 2018). Recently, this frame work was improved further to include human capital, social capital, individual, institution-related, and active learning attributes (Al Hinai et al., 2020).To explore the importance of institution-related attributes on the readiness for employability of the HEIs graduates, one study stated that they are number of factors influence job attainment which are considered to be institution-related factors such as course quality and graduate identity(Chan, Fong, Luk, & Ho, 2017). Also the academic reputation, pre-graduate experience and job specific functional skills are considered to be important factors (Finch, Hamilton, Baldwin, & Zehner, 2013). Besides, continuous assessment of skills was analyzed as an important element that support employability on an empirical study in which the employers' perception from three European countries including Austria, Romania and Sweden were examined. The study involved the examination of five different sectors of activity including tourism, healthcare, industry, building, and retail using an experimental and innovative online tool for continuous assessment of competencies to support employability. Using qualitative and quantitative transnational research, they found that the employability skills are mostly learnt at the work place and hence the HEIs need to foster and embed them within their curricula and practical activities, graduates' skills and competence must go in line with the demand of the employers, the core set of graduates' competencies are their capacity and willingness to learn, and finally both hard and soft skills have equal importance at the workplaces (Gabor, Blaga, & Matis, 2019).

In addition, to enhance the importance of institution-related attributes, Bennett (2020) studied "Fostering equitable access to employability development through an institution-wide, in-curricular strategy". The study analyzed the curricular design and their integrations as an institution- related approach to employability. Studying the related literature, the study highlighted the difficulties and opportunities gained from the whole-of-institution approach. The findings of the study collected from essential concern parties including students, academic staff, employers, and HEIs leaders revealed that employability development has to be embedded within the core curriculum for maximum students' benefits (Bennett, 2020). Also, The findings of a study emphasizing the importance of designing curriculum structures and student learning objectives with the directives of utilizing active and experiential learning. This approach, according to the study, was intended to maximize the effectiveness of the practical approach, rather than the theoretical common approach delivered by the normal engineering programmes. Such approach was recommended strongly to enhance the outcomes of the teaching and learning experience of the engineering graduates because it was found essential for students to develop dramatically their professional awareness and communication skills in addition to their practical skills and abilities which result in acquiring the most readiness for employability skills and graduates can become high-tech professional engineers and entrepreneurs (Jabarullah & Hussain, 2019).

Therefore, this study will focus on analysing Policies, Class room environment, Syllabus and Course Curriculum, Teaching material, Teaching Quality, Assessment Strategies, Student centric approach, Study cost/ scholarship (Al Hinai et al., 2020).

Finally, the initial theoretical framework representing the relationship among the study variables is presented in figure 1. This portion of the framework is obtained from a wider study of factors affecting the Readiness for employability among Engineering graduates of the HEIs in Oman (Al Hinai et al., 2020).
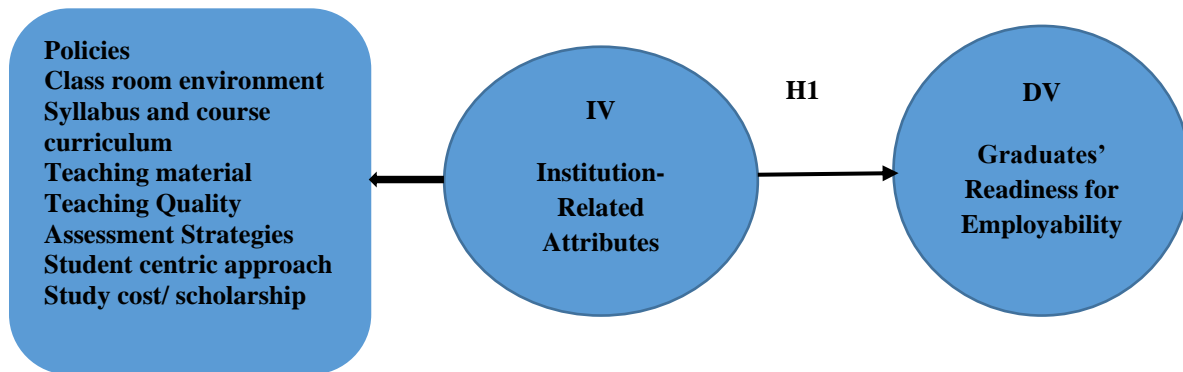
Policies
Class room environment
Syllabus and course curriculum
Teaching material
Teaching Quality
Assessment Strategies
Student centric approach
Study cost/ scholarship

IV

Institution-Related Attributes

H1

DV

Graduates' Readiness for Employability

Figure 1. The influence of Institution-Related Attributes on Graduates' Readiness for Employability among Engineering graduates of the HEIs in Oman

H1: There is a significant relationship between Institution-Related attributes and graduate's readiness for employability among engineering graduates of the HEIs in Oman.

METHODOLOGY

The simple random characteristic strategy of the sampling technique was utilised by collecting data from an intended sample consisting from 340 random sample of engineering students obtained from different HEIs in Oman. To ensure the validity and clarity of the questionnaires, a panel of experts were consulted consisting of two academic engineering experts and two language experts. The findings of this study are accomplished utilizing the quantitative statistical methodology approach. This approach implements a numerical analysis using survey questionnaires as the base to collect data from students, and graduates (Creswell & Creswell, 2017; Dörnyei, 2007). Human Capital Theory were utilised as the underpinning theory of the study since it examines the financial benefits resulting from the investments in people' skills and resources. Such investment will result to have highly-skilled labors placed in highly-skilled careers, which could improve the nation's economy and prosperity (Becker, 1962; Leslie & Brinkman, 1988; McMahon, 2009; Schultz, 1963; Slaughter, Taylor, & Rosinger, 2015).

Also, two statistical programs are used for data analysis. The first one is the use of the Statistical Package for the Social Studies (SPSS) version 26.0 to administer the preliminary data analysis. The second statistical program utilised for this study was the Partial Least Square Structural Equation Modelling (PLS-SEM) software. This program is used for the evaluation of the reflective measurement model, structural model, path analysis, and hypotheses testing (Hair Jr, Sarstedt, Ringle, & Gudergan, 2017).

DISCUSSION OF RESEARCH QUESTIONS AND FINDINGS

Testing for Normality

The descriptive statistics present the statistical distribution of the study data that includes the observed variables, the means, standard deviations, skewness, and kurtosis. The SPSS 26 version software was used to provide the descriptive statistics which highlights the statistical distribution of the collected data of the sampled pilot test. This statistical data represent the study assigned variables, the means and the standard deviations. In addition, skewness, and kurtosis are employed for testing the normality of the data. Table 1 show the results of the descriptive

statistics calculation and testing the normality of the data. As shown in the tables, all selected variables have skewness values as well as kurtosis values within the range -3 and +3 which signify that the study variables are normally distributed. Specifically, the recommended values for skewness are between 3 and + 3, and the values for kurtosis are between - 10 to + 10 when using SEM (Urbano, 2013).

Table 1. The skewness and kurtosis for normality

Descriptive Statistics						
Institute-Related Attributes (IRA)	N	Skewness		Kurtosis		
	Statistic	Statistic	Std. Error	Statistic	Std. Error	Normality assumption
IRA1	340	-.801	.132	.142	.264	Normal
IRA2	340	-.601	.132	-.144	.264	Normal
IRA3	340	-.246	.132	-.841	.264	Normal
IRA4	340	-.198	.132	-.690	.264	Normal
IRA5	340	-.181	.132	-.713	.264	Normal
IRA6	340	-.256	.132	-.628	.264	Normal
IRA7	340	-.495	.132	-.123	.264	Normal

Table 2. Mean and standard deviation-Institution-Related Attributes

Descriptive Statistics-Institution-Related Attributes			
Item	N	Mean	Std. Deviation
The College or University Policies help to improve the graduates' attainment of readiness for employability skills	340	5.2353	1.51801
The Class room environment help to improve the graduates' attainment of readiness for employability skills	340	5.0353	1.49293
Implementing Student Centric Approach strategies help to improve the graduates' attainment of readiness for employability skills	340	4.8941	1.44739
Teaching Quality were enough help to improve the graduates' attainment of readiness for employability skills	340	4.5559	1.58713
Overall Syllabus and Course Curriculum were enough help to improve the graduates' attainment of readiness for employability skills	340	4.5294	1.74368
Assessment Strategies were enough help to improve the graduates' attainment of readiness for employability skills	340	4.3618	1.62076
Teaching materials were enough help to improve the graduates' attainment of readiness for employability skills	340	4.2853	1.65214
Institutional Related Attributes Average Score	340	4.6971	1.34120

Table 2 reveals that the attribution of the College or University Policies, the Class room environment (Jollands et al., 2015), and the implementation of Student Centric Approach strategies have the most effect on the graduates' readiness for employability skills attainment

(Al-Mahrooqi & Denman, 2016). While, the HEIs are still require to improve their teaching Quality (Manoharan & Arockiam, 2017), overall Syllabus and Course Curriculum (Craps et al., 2017), assessment Strategies (Jackson, 2015), and teaching materials (Al-Azri, 2016) to enhance their graduates with required graduates' readiness for employability skills (Monteiro, Almeida, & Vasconcelos, 2016).

Table 3.   Summary of measurement model findings

Constructs (Latent Variable)	Measurement items (Indicators)	Convergent Validity (Loading)	Internal Consistency Reliability		AVE	Discriminant Analysis
			CA	CR		
Institution Related Attributes	IRA1	0.761	0.924	0.938	0.685	Yes
(IRA)	IRA2	0.802				
	IRA3	0.814				
	IRA4	0.847				
	IRA5	0.849				
	IRA6	0.881				
	IRA7	0.831				

By utilising SEM-PLS 3.0 (Hair Jr et al., 2017), table 2 highlights a brief summary of the results obtained for the measurement model assessment which illustrates that the reliability and validity tests for this study. The findings show that all the requirements of reliability and validity of the measurement model assessment are met.

Hypothesis Testing

To conduct the hypotheses testing connected to the structural model of the study, there are several elements are required to be considered. The first element, for a hypothesis to be valid, the value of the path coefficient of 0.1 or higher is required to account for a certain impact within the model (Hair, Ringle, & Sarstedt, 2011). Secondly, the acceptable t-value and p-value must be greater than 1.96 and less than 0.05 respectively (Ramayah, Cheah, Chuah, Ting, & Memon, 2018). The hypothesis testing result of the impact of Institution-Related Attributes on the Readiness for Employability is illustrated in table 4.

Table 4. 1 Hypothesis testing results

Hypothesis	Path Coefficient β	T Statistics	P Values	5% BCI LL	95% BCI UL	Decision (p < 0.05)
Institution- related attributes -> Readiness for Employability	-0.102	1.266	0.103	0.241	0.028	Rejected

The study findings demonstrate no significant influence of Institution-Related attributes factor (H1) on the Readiness for Employability of the engineering graduates of the HEIs in

Oman. Though many previous studies affirmed the essential roles of Institute-Related attributes factor in providing graduates with most required Readiness for Employability skills such the stress of the requirement of embedded the employability skills development within the core curriculum (Bennett, 2020; Jabarullah & Hussain, 2019). Also, Clarke (2018) pointed out that Institution-Related factor contributes to the understanding of the graduates' attributes that influence employability and career outcomes among graduates. Besides, the importance for Readiness for employability skills such as critical thinking, team-work, and communication skills necessary for success in the workplace of the 21st Century are effective when being taught in the curriculum of the HEIs (Evans, Davis, & Wheeler, 2017). In addition, special academic modules on development of Readiness for employability competencies combining both technical and soft skills can be included in the curriculum of the HEIs programmes to enhance graduates' employability (Manoharan & Arockiam, 2017; Pauceanu, Rabie, & Moustafa, 2020). Also, practical activities, combined with communication skills, and socio-emotional competencies were the most important requirement for labor market transition which highlights the importance of the integration of practical activities in engineering curriculum to prepare graduates for future employability (Edwin & Sabura, 2019; Monteiro et al., 2016). Moreover, the HEIs are advised to conduct revising process and developing curriculums activities to be enriched with required Readiness for employability skills, arranging internships and work placements opportunities for students, encouraging the students' participation in research based projects, and incubating Readiness for Employability skills in their courses curricula, and learning and teaching strategies and outcomes (Pouratashi & Zamani, 2019). Finally, the assessment strategies conducted by the HEIs were found essential to provide tangible information on students' work-readiness and employability, and hence, the Omani HEIs are required to redesign and improve their Policies, Class room environments, Syllabi and Courses Curricula, Teaching materials, Assessment Strategies, Teaching Qualities, and implement wider use of student centric approaches to improve the quality of the graduates in terms of their Readiness for Employability and reduce if not completely eliminate the skills gap of the graduates (Chan et al., 2017).

CONCLUSION AND POLICY RECOMMENDATION

An essential recommendation from this study is for HEIs' Engineering departments, course designers, and policymakers to utilize all aspects of Institute-Related attributes effectively towards promoting engineering graduates' Readiness for Employability. One suggestion is to reform the quality of HE system to make it suitable to contribute in preparing competent and skilled graduates through establishing and improving the employment-related strategies and policies to ensure they meet the required national and international quality assurance standards, strengthen the collaboration between HEIs and industry to ensure that the HE system meets the requirement of the labour market, develop career-based modules enriched with employability skills and high-quality learning environment, promote student-centered teaching and learning approach strategies to enhance students' training quality and improvement of their academic knowledge and attainment of most required Readiness for Employability skills, embed Readiness for Employability skills and ethics in the core curriculum, continuously review and update the offered engineering specialization in accordance with labor market needs and technologies change, and equip engineering workshop with new state of the art equipment and tools.

In conclusion, the literature presented in the study is expected to expand valuable knowledge and provide an essential contribution to the rare number of empirical studies investigating graduates' Readiness for Employability in Oman. It also highlighted the adopted methodological approach, outlined and discussed the findings, and concluded with the implications and recommendations for practitioners and future researchers. Overall, this research study contributes to the understandings of Readiness for Employability skills, causes of skills gap among graduates, and the development of engineering graduates' employability and graduates' employment in Oman. The results of this study have addressed a possible cause of the skills gap of the engineering graduate of the HEIs in Oman by investigating the impact of the independent variable of Institution-Related attributes on the graduates' Readiness for Employability. Specifically, the minimal significance indicates where HEIs are required strongly to develop and improve to reduce the skills gap of their graduates and thus improve their quality and their Readiness for employability.

REFERENCES

Al-Azri, A. K. H. (2016). *Academics', students', employers', and graduates' perceptions towards business management and administration undergraduate employability: implications for higher education and industry in Oman.* Brunel University London.

Al-Mahrooqi, R., & Denman, C. J. (2016). Omani graduates' English-language communication skills in the workforce: Employees' perspectives. *International Journal of Applied Linguistics and English Literature, 5*(4), 172-182.

Al Hinai, M. R., Bhuiyan, A. B., & Husin, N. A. (2020). THE MODERATING EFFECTS OF GENDER, CAREER, MORAL MINDSET ON THE RELATIONSHIP BETWEEN THE GRADUATE ATTRIBUTES AND READINESS FOR EMPLOYABILITY AMONG ENGINEERING COLLEGES GRADUATES IN OMAN. *International Journal of Accounting & Finance Review, 5*(3), 16-30.

Becker, G. S. (1962). Investment in human capital: A theoretical analysis. *Journal of political economy, 70*(5, Part 2), 9-49.

Bennett, D. (2020). Fostering equitable access to employability development through an institution-wide, in-curricular strategy. *Student retention and success in higher education. London: Palgrave Macmillan*.

Chan, C. K., Fong, E. T., Luk, L. Y., & Ho, R. (2017). A review of literature on challenges in the development and implementation of generic competencies in higher education curriculum. *International Journal of Educational Development, 57*, 1-10.

Clarke, M. (2018). Rethinking graduate employability: The role of capital, individual attributes and context. *Studies in Higher Education, 43*(11), 1923-1937.

Craps, S., Pinxten, M., Saunders, G., Leandro Cruz, M., Gaughan, K., & Langie, G. (2017). Professional Roles and Employability of Future Engineers.

Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*: Sage publications.

Dörnyei, Z. (2007). *Research methods in applied linguistics: Quantitative, qualitative, and mixed methodologies*: Oxford University Press Oxford.

Edwin, M. M. D., & Sabura, F. M. (2019). Critical Analysis on Employment of Graduates in Oman.

Evans, S. G., Davis, J., & Wheeler, M. (2017). *An Analysis of School-to-Work Readiness.* Saint Louis University.

Finch, D. J., Hamilton, L. K., Baldwin, R., & Zehner, M. (2013). An exploratory study of factors affecting undergraduate employability. *Education+ Training, 55*(7), 681-704.

Gabor, M. R., Blaga, P., & Matis, C. (2019). Supporting Employability by a Skills Assessment Innovative Tool—Sustainable Transnational Insights from Employers. *Sustainability, 11*(12), 3360.

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing theory and Practice, 19*(2), 139-152.

Hair Jr, J. F., Sarstedt, M., Ringle, C. M., & Gudergan, S. P. (2017). *Advanced issues in partial least squares structural equation modeling*: saGe publications.

Holmes, L. (2013). Competing perspectives on graduate employability: possession, position or process? *Studies in Higher Education, 38*(4), 538-554.

Jabarullah, N. H., & Hussain, H. I. (2019). The effectiveness of problem-based learning in technical and vocational education in Malaysia. *Education+ Training*.

Jackson, D. (2015). Employability skill development in work-integrated learning: Barriers and best practice. *Studies in Higher Education, 40*(2), 350-367.

Jollands, M., Pocknee, C., Clarke, B., Grando, D., Hamilton, M., Smith, J., . . . Burton, L. (2015). Developing graduate employability through partnerships with industry and professional associations.

Leslie, L. L., & Brinkman, P. T. (1988). *The Economic Value of Higher Education. American Council on Education/Macmillan Series on Higher Education*: ERIC.

Manoharan, S., & Arockiam, K. (2017). A Study on the Influence of Domicile of Engineering Colleges and Competency Profile of Industrial Aspirants. *International Journal of Engineering and Management Research (IJEMR), 7*(3), 238-241.

McMahon, W. W. (2009). *Higher learning, greater good: The private and social benefits of higher education*: JHU Press.

Monteiro, S. C., Almeida, L. S., & Vasconcelos, R. (2016). Engineering graduates' perception of competencies and preparation to the labor market transition. *ICERI proceedings, 2016*, 3785-3790.

Pauceanu, A. M., Rabie, N., & Moustafa, A. (2020). Employability under the Fourth Industrial Revolution. *Economics & Sociology, 13*(3), 269-283.

Pouratashi, M., & Zamani, A. (2019). University and graduates employability. *Higher Education, Skills and Work-Based Learning*.

Ramayah, T., Cheah, J., Chuah, F., Ting, H., & Memon, M. (2018). Partial least squares structural equation modeling (PLS-SEM) using smartPLS 3.0 *An Updated Guide and Practical Guide to Statistical Analysis*: Pearson.

Schultz, T. (1963). The Economics Value of Education . New York and London. Columbia: University Press.

Slaughter, S., Taylor, B. J., & Rosinger, K. O. (2015). A critical reframing of human capital theory in US higher education. *Critical approaches to the study of higher education: A practical introduction*, 80-102.

Urbano, R. C. (2013). *Using secondary datasets to understand persons with developmental disabilities and their families*: Academic Press.

Vanhercke, D., De Cuyper, N., Peeters, E., & De Witte, H. (2014). Defining perceived employability: a psychological approach. *Personnel Review, 43*(4), 592-605.

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