

**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**

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**ABSTRACT**

*The Omani higher education system has enlarged noticeably since 1970 both in the number of students and in the infrastructure. As a result, there has been a wide investment to provide quality higher educational institutes capable of providing suitable graduates to fulfill the requirements of both public and private sectors with a focus on females to assure equal gender educational and career opportunities chances. Therefore, graduates' readiness for employability has become a major issue for Higher Education Institutes (HEIs) in Oman due to the growing concern from governments and industries on the quality of the graduates. Therefore, the main objective of the current study is to develop a conceptual framework for the graduate readiness for employability and incorporates the graduate attributes including human capital attributes, social capital attributes, individual attributes, institution-related attributes, and active learning attributes moderated by gender, career, and moral mindset among Engineering Graduate in Oman. The study uses available sources of existing literature based on the four main keywords 'higher education', 'graduate attributes' or 'readiness for employability, and 'skills gaps in*

*Oman'. The study also justified by the following theories which are human capital; education and economy development; behavior theory; and motivation theory. The literature utilized for this study covers the latest literature (from 2013 to 2020) extracted from Google Scholar, ProQuest, and Scopus, and other online resources. Based on the summary findings, the study develops a framework that analyses the effects of influential factors on the graduate readiness for employability that will be considered as an empirical study on the graduates of the engineering colleges in Oman. Moreover, the study also concluded that there are moderating effects of gender, moral mindset, and career mindset on the influence factors and the graduate readiness for employability among Omani engineering colleges' students. The results of the study will fill the gap in understanding the main factors affecting the attainment of graduates' readiness for employability skills in Oman. The study recommends justifying this conceptual framework by empirical data from the Engineering Graduate in the Higher Education Institutes (HEIs) and draws a policy guideline for ensuring of readiness of engineering graduates for employability in the HEIs in Oman.*

**Keywords:** Active Labs, Attributes, Capital, Employability, Gender; Graduate, Higher Education, Mindset, Skills.

## INTRODUCTION

Higher education (HE) is considered an important issue for the development of the social life and the growth of the economic sector of the Sultanate of Oman (Al-Marjan, 2004). The education system in Oman has gone through two major stages. The first stage was to enhance the quantity of education in the era commenced between 1970 and 1995. While, the second stage which took place after 1996, intended to reform the Higher Education (HE) quality and enhance the skills and competence of the graduates (Funsch, 2015).

The HE system in the Sultanate of Oman is supervised by different entities that set the procedures, administrations, and tactics plans for approval by the Council of HE (CHE) (Al-Harathi, 2011). Due to having different entities, the HEIs in Oman have several setbacks concerning the tactics plans, the workplace requirements, and the national economy requirements of skilled graduates (Al-Lamki, 2002).

One of the most important challenges is how to provide a continuously changing requirement of skilled degree graduates to industries. Despite the attempts of academia to enhance the graduates' readiness for employability skills, many work providers are not gratified with the new graduates' quality (Lim, Lee, Yap, & Ling, 2016; Yang, Cheung, & Fang, 2015). Worldwide, graduates' readinesses for employability skills gaps are noticed by many studies. For example, in Australia, there is an indication of about 22.4% of health employers reported having problems when hiring new graduates for not having the required readiness for employability skills (Messum, Wilkes, Jackson, & Peters, 2016). Similarly, 64% of Indian engineering work providers reported that they are not satisfied with their fresh recruited graduates (Blom & Saeki, 2011). Furthermore, 73% of Uzbekistan firms have reported having substantial problems with new graduates because they lack the desired employment skills (Ajwad et al., 2014). Additionally, studies done on different sectors in India concluded that up to 60% of industries stated that new graduates who joined the labor force lack the essential soft skills for succeeding at their firms and 82% mentioned that there is a big skills gap present between what industry requires and graduates' possess (Deepa & Seth, 2013).

As a result of the Skills Gap of the HE graduates, the unemployment rate among the Omani graduates is high. Another research concluded that many Omani youth graduates spend more than three years to find a job (NCSI, 2015). Also, in a study administered by the Ministry of Higher Education, the findings indicated that among 12,551 graduates, 53% of the students were still unemployed (Ansari & McGlade, 2018). To explore the results of unskilled graduates, one study found that the graduate unemployment rate is as high as 19% (OMAN, 2011). Other studies showed that the number of unemployed people is 49,000 among them 14,980 are HE graduates (Ansari & McGlade, 2018). The number of job seekers by the end of 2016 was 43,838 (NCSI, 2017). The latest data obtained from E-Census (2020) indicated that the total job active seekers is 65,438 with 24,401 HE graduates (E-Census, 2020). Other researchers claim that the spread of unemployment among graduates is because of their skills Gap. They concluded that the HEIs are failing to provide the industries with skilled graduates. As a result of this shortfall of the HE system to produce highly qualified graduates, the work providers continued to recruit highly skilled workers internationally (Coenjaerts, Ernst, Fortuny, Rei, & Pilgrim, 2009; Joshi & Ghosal, 2009; Randeree, 2009; Swailes, Al Said, & Al Fahdi, 2012). “The World Economic Forum on the Global Competitiveness (2014-2015)”, has emphasized the fact that the second most obstacles to investment in Oman is unskilled employee graduates.

Therefore, this study aims to determine a readiness for employability frame work which identifies the essential graduates’ readiness for employability required skills which identified as; soft skills consisting of Critical or analytical thinking, problem solving skills, Communication skills, lifelong learning and information literacy, Team-working skills, Professional ethics and morality, Entrepreneurship skills, and Leadership skills (Adnan, Daud, Alias, & Razali, 2017; Al-Azri, 2016; Anastasiu et al., 2017; Belwal, Priyadarshi, & Al Fazari, 2017; Craps et al., 2017; Evans, Davis, & Wheeler, 2017; Finch, Hamilton, Baldwin, & Zehner, 2013; Gupta, Singh, & Kaushik, 2018; Lane, 2017; Moore & Morton, 2017; Neisler, Clayton, Al-Barwani, Al Kharusi, & Al-Sulaimani, 2016), proficiency of English (Al-Lamki, 1998, 2006; Al-Mahrooqi, 2012; Al-Mahrooqi & Denman, 2016; Allen & De Weert, 2007; Arkoudis, Baik, Bexley, & Doughney, 2014; Manoharan & Arockiam, 2017), and technical industrial skills (Anastasiu et al., 2017; Belwal et al., 2017; Cooper, Gallagher, Collins, & Shahir, 2015). Also, it intends to address the Graduates’ attributing factors that may cause the misalignment of skills Gap provided by the HEIs and the workplaces required skills that influence engineering graduates’ readiness for employability in Oman consisting of human capital, social capital, and the individual attributes (Clarke, 2018), institution-related attributes (Jackson, 2014), and active learning attributes (Hassan & Puteh, 2017). Finally, it analysis the moderating effect of gender (Strachan, Peixoto, Emembolu, & Restivo, 2018), career, and moral mindset (Jones, 2017).

In such circumstances, it the timely initiative, find scope to provide quality higher educational institutes capabilities for ready skill graduates to fulfill the requirements of both public and private sectors with a focus on females to assure equal gender educational and career opportunities chances. Therefore, graduates’ readiness for employability has become a major issue for HEIs in Oman due to the growing concern from governments and industries on the quality of the graduates. This approach to graduate readiness for employability intends to design a framework that incorporates the graduate attributes including human capital attributes, social capital attributes, individual attributes, institution-related attributes, and active learning attributes moderated by gender, career, and moral mindset. This unique graduate attributes framework is intended to be used as an Empirical Study on the Engineering Graduate readiness of employability in Oman.

## BACKGROUND OF THE STUDY

### Concept of graduate readiness for employability

Graduate readiness for employability has been the main concern of many and newly published studies indicating that readiness for employability is highly considered by researchers, academia, and the industries (Finch et al., 2013; Smith, Ferns, & Russell, 2014; Sumanasiri, Yajid, & Khatibi, 2015).

A newly widely used definition of graduates' readiness for employability combines the weight of generic soft skills and graduate attributes. Such a definition indicates the importance of industrial and work skills attainment (Jackson, 2016).

*“A set of generic softer skills, in particular, personal attributes that can be summed up as a positive attitude are critical to being employable. A positive attitude encapsulates characteristics such as a willingness to take part and openness to new activities and ideas. It underpins and links together the other key capabilities”*(Jackson, 2016).

Since graduate readiness for employability refers to the ability of graduates' gaining the most generic academic skills and specific employability skills (Stiwne & Alves, 2010). Therefore, this definition of Graduate Readiness for Employability emphasizes highly the importance of graduates' attributes, and the attainment of technical industrial work skills and knowledge over academic performance.

### Technical Skills

Hard skills are known as the technical skills required to carry technical works and also the administrative procedures related to an industry's core work. Hard skills are the occupational skills required by a job or any other technical activities such as for “equipment operation, computer protocols, safety standard, financial procedure, and sale administration”. (Chaturvedi, Yadav, & Bajpai, 2011).

### Soft Skills

Soft skills are the skills required to perform hard skills such as interpersonal communication, critical thinking, work ethics, and creativity. According to Abdullah-Al-Mamun (2012), soft skills play essential roles in deciding the success of any person in his occupation. He added that “people with a solid command of soft skills can think of their feet, solve problems, lead a group through teamwork exercises, give critical feedback, motivate fellow employees, and set an example” (Abdullah-Al-Mamun, 2012).

Besides, Lazarus (2013), defined soft skills as the preferable attributes required for employment which are not based on acquired knowledge like sensibility, common sense, flexibility, and positive attitude (Arthur Lazarus, 2013).

Also, Parsons (2008), stressed that soft skills play a major role when seeking employment. He emphasized the personality traits, soft skills, which enhance the employability of people (Parsons, 2008). Hurrell and Scholarios (2014) defined soft skills as “nontechnical and not reliant on abstract reasoning, involving interpersonal and intrapersonal abilities to facilitate mastered performance in particular contexts” (Hurrell & Scholarios, 2014). Therefore, “soft skills represent a dynamic combination of cognitive and meta-cognitive skills, interpersonal, intellectual and practical skills and ethical values. Soft Skills help people to adapt and behave positively so that they can deal effectively with the challenges of their professional and everyday life” (Rao, 2018).

### **Concept of Human Capital Attributes**

Human capital Attributes acknowledged as essential elements for graduates' readiness for employability. Many researchers have argued the magnitude to which generic skills, soft, and technical are considered to be interchangeable from HEIs to the industries, or among employers (Hinchliffe & Jolly, 2011; Kalfa & Taksa, 2015). However, skill learning is an essential part of higher education. General required competencies, including problem-solving, critical thinking, or team skills represent a higher order thinking type of skills that are expected to be acquired by HE graduates. They are considered to be an essential part of graduates' identity. Those skills are linked strongly with career expertise especially for entering highly sophisticated professions such as engineering or medicine. Therefore, Human capital attributes are an essential part of graduate employability (Heijde & Van Der Heijden, 2006).

### **Social Capital Attributes**

There is strong evidence that social capital attributes such as the quality and rank of university attended and the specialization attained to have a strong impact on employment outcomes (Holmes, 2013). For some researchers, the reputation of awarding university has a strong impact on graduate employability (Finch et al., 2013). Also, some other studies founded that the status of the rewarding HE university influenced the recruiting process which means that rewarding HEIs affect the readiness of the employability of its graduates (Okay-Somerville & Scholarios, 2014).

There are also indications that it impacts perceived employability (Okay-Somerville & Scholarios, 2015; Rothwell, Herbert, & Rothwell, 2008). As a result, networking as a key component of social capital attributes strongly influences the awareness of career information which in return affects positively graduates' readiness for employability (de Janasz, Forret, Haack, & Jonsen, 2013; Forret & Dougherty, 2004). In conclusion, social capital attributes when combined with human capital attributes and other factors such as individual attributes, and modern active learning environment can greatly improve graduates' readiness for employability.

### **Individual attributes**

The aspect of individual attributes has recognized as an essential part of career success (Fugate & Ashforth, 2003). For any graduates having adaptability and flexibility attributes help the graduate to deal with any required change and also make the graduate ready to deal with future career changes and therefore he can enhance his job desired outcomes (Fugate, Kinicki, & Ashforth, 2004; Heijde & Van Der Heijden, 2006). Individual attributes affect the aim of employability (Okay-Somerville & Scholarios, 2015). Bridgstock (2009) in his paper "The graduate attributes we've overlooked: Enhancing graduate employability through career management skills", split career skills into as "self-management skills, and career-building skills". Self-management skills consist of the individual attributes of personnel's "values, attitudes, abilities, aptitudes, interests, and work-life balance". While career-building skills help graduates to sail and progress in their careers (Bridgstock, 2009). Therefore, graduates are desired to attain the adaptability and flexibility attributes for their future readiness for employability.

### **Active Learning Attributes**

Active Learning Attributes consisting of Computer Based Training (CBT), Simulators, and Virtual Learning Equipment (VLE) is considered an interactive learning environment. They are

considered a close resemblance to real-world environments. This equipment uses a high-fidelity virtual environment to enhance learning. The use of an active lab environment is a relatively new method and therefore, its suitability must be investigated as an adequate tool in delivering transferable training skills (Adams et al., 2008; Fitzgerald et al., 2011). Another research has pointed out that the workplace environment and the use of hypermedia technologies are valuable sources for workers and students training (Conrad, 2008). Also, Boyd (2017) investigated the effectiveness of online interactive simulations in the improvement in learners' ability to apply critical thinking skills in a dangerous work environment. He found that the implementation of the interactive simulation was as effective as training in real live equipment (Boyd, 2017).

### **METHODOLOGY OF THE STUDY**

The methodology of this paper is done by conducting extensive secondary data analysis. The related literature and papers from the years of 2014 until the present are collected and then summarized. A meta-analysis technique was then conducted to determine the study framework. The primary at a later stage will be collected from Omani engineering students who graduated or in the final year whether employed or seeking employment both males and females. The study utilizes simple random sampling and its framework is designed based on three teaching and learning theories which are human capital; education and economy development; behavior theory; and motivation theory. The study period covers 5 years (from 2015 to 2020). The literature utilized for this study covers the latest literature (from 2013 to 2020) extracted from Google Scholar, ProQuest, and Scopus. The four main keywords used were 'higher education', 'graduate attributes', 'readiness for employability, and 'skills gap in Oman.

### **EMPIRICAL REVIEW FINDINGS**

Graduate readiness for employability is the main driver for HEIs all over the world. Since the last two decades of the 20th, governments and employer's groups have put high pressure on HEIs to provide evidence of the effectiveness of their higher education programs in providing ready to work graduates. From an academic perspective, there is a concern about the effectiveness of HEIs used strategies in developing transferable employability skills into their students. Holmes (2013) analyzed the ways universities deliver graduate employability required skills. He analyzed three influencing factors that affects graduate employability. Those factors are the human capital factors, social capital factors, and the individual behavior factors (Holmes, 2013). He proposed an employability framework consisting of the above factors as main independent variables and contains for the human capital; skills, competencies and work experience, for social capital; network, social class and university ranking and the individual behavior; career self-management and career-building skills.

Other study emphasizes essentially self-perception for graduates' employment success (individual attributes). They have a different definitions for employability to be based on the individual's perception of the possibility of getting and sustaining employment (Vanhercke, De Cuyper, Peeters, & De Witte, 2014). Clarke (2018) determined an integrated adding another variable to include an employability gap called the labor market variable which is consisting of both the demand of workers and the supply of available workers in the labor market. This new model of graduate readiness for employability combines what he believed as the influencing factors for graduate employability which consisted of human capital, social capital, and individual behaviors and their attributes towards employability taking into account the labor

market contribution which in total influence the graduate readiness for employment as shown in Figure 1 (Clarke, 2018).

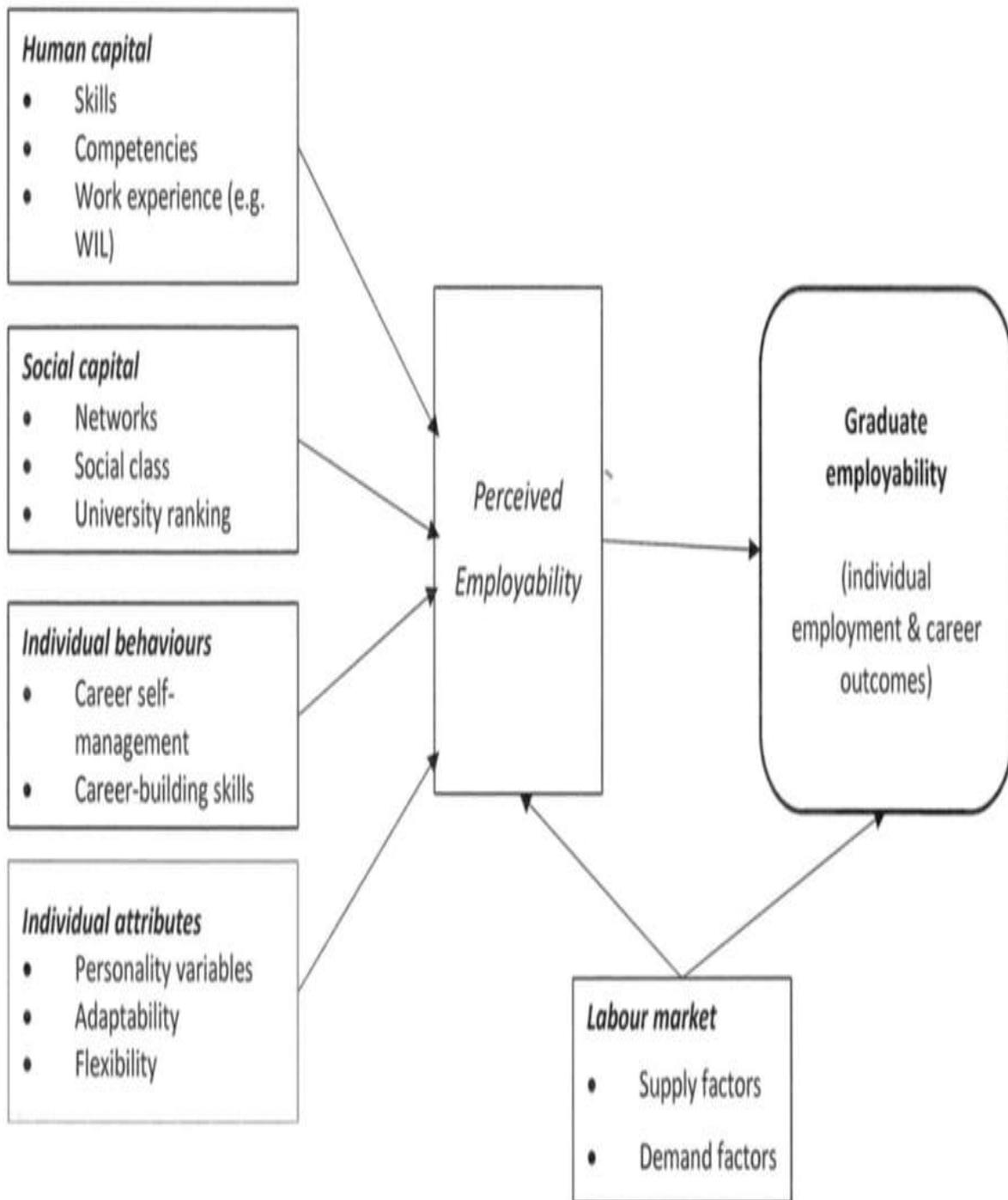


Figure 1. An integrated model of graduate employability (Clarke, 2018)

There are other factors also influence graduate readiness for employability such as institution-related factors including course quality, graduate identity, academic reputation, pre-graduate experience, and job-specific functional skills (Finch et al., 2013). Another important factor is the utilization of an active learning environment for delivering technical industrial related skills. Several empirical studies analyzed the importance of active learning in teaching practical competencies to enhance the quality of engineering graduates for their readiness of employability such as online learning, blended learning, collaborative learning, laboratory learning, and interactive learning (Shetty & Xu, 2018), computer programs, Computer Based Training (CBTs), Virtual Learning Environment (VLE) and simulators (Hassan & Puteh, 2017). Moreover, many researchers believed that other factors such as Gender (Mansour, 2018), Career mindset (Rozaan & Zibarzani, 2018), and Moral mindset (Brewer, 2018) have a direct influence in the implementation and attainment of graduate readiness for employability skills at the HEIs.

### **Theoretical Justifications**

Study theoretical framework was conducted based on three teaching and learning theories which are human capital (Schultz, 1963); education and economic development (Breton, 2012); behavior theory (Liska, 1984); and motivation theory (Kapp, 2012). The expression of human capital is used to indicate the investment in the activities of HE education and work placement that frame the graduate's capabilities and in return enhance his income (Slaughter, Taylor, & Rosinger, 2015). Considering the Oman case, the HCT theory is used to describe the following expectations; Attainment of graduates' readiness for employability skills is the responsibility of the formal education, Educated graduates must have higher selection priority for employment, and finally, higher-income payments depends highly on graduates' productivity (Al-Harhi, 2011).

### **DEVELOPMENT OF THE CONCEPTUAL FRAMEWORK**

The present study developed a conceptual framework based on the literature gap and then justified with most relevant theories to solve the Gap existing among HE Engineering graduates' skills and the required skills by the industries in Oman.

The proposed readiness for employability framework can be used to study and analyze the level of readiness for employability of Omani HEIs engineering graduates, the effects of the graduate attributes in the engineering graduates' readiness for employability, and further analyses the moderating effects of gender, career and moral mindset. Such framework can be drawn to assess HEIs in Oman and researchers to identify the required employability skills, understand the most influenced attributes in the graduates' readiness for employability, and draw a deep knowledge on the responsibility of the gender of students and their career and moral mindset in the attainment of readiness for employability skills.

**The independent variables** of this study are the Graduates Attributes consisting of Human Capital Attributes, Social Capital Attributes, Individual Attributes, Institutional Related Attributes, and Active Learning Attributes (Chan, Fong, Luk, & Ho, 2017; Clarke, 2018; Hassan & Puteh, 2017; Holmes, 2013; Jackson, 2014; Shetty & Xu, 2018; Vanhercke et al., 2014).

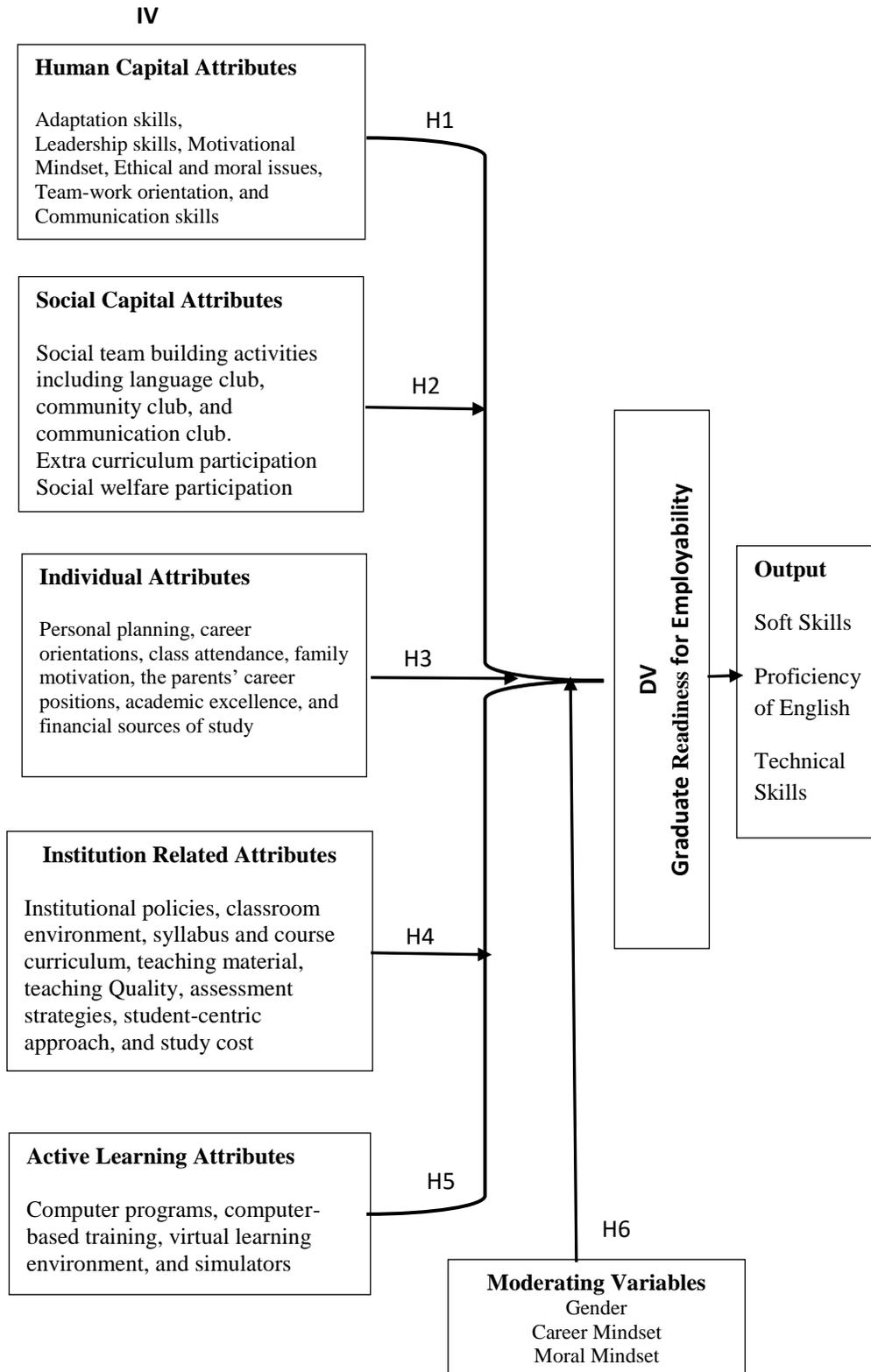


Figure 2. The research readiness for employability framework with Hypothesis development for Oman HEIs

**The Dependent Variable** is the Graduate Readiness for Employability consisting of:

- Soft skills: (Adnan, Daud, Alias, & Razali, 2017; Al-Azri, 2016; Anastasiu et al., 2017; Belwal et al., 2017; Craps et al., 2017; Evans, Davis, & Wheeler, 2017; Finch, Hamilton, Baldwin, & Zehner, 2013; Gupta, Singh, & Kaushik, 2018; Lane, 2017; Moore & Morton, 2017; Neisler, Clayton, Al-Barwani, Al Kharusi, & Al-Sulaimani, 2016)
- Technical skills: (Al-Lamki, 1998, 2006; Al-Mahrooqi, 2012; Al-Mahrooqi & Denman, 2016; Allen & De Weert, 2007; Arkoudis, Baik, Bexley, & Doughney, 2014; Manoharan & Arockiam, 2017).
- Proficiency of English (Al-Lamki, 1998, 2006; Al-Mahrooqi, 2012; Al-Mahrooqi & Denman, 2016; Allen & De Weert, 2007; Arkoudis, Baik, Bexley, & Doughney, 2014; Manoharan & Arockiam, 2017)

**The moderating Variable** of this study is Gender and Career and Moral Mindset (Mansour, 2018; Suleman, 2018; Strachan, Peixoto, Emembolu, & Restivo, 2018; Turen, 2015; Rangel, 2018; Lewis & McKenzie, 2017; Balakrishnan & Low, 2016; Taliaferro, 2018; Brewer, 2018; Rozan & Zibarzani, 2018).

### **Hypothesis Development**

The study used alternative form hypothesis in the following hypothesis:

Hypothesis 1: There is a significant relationship between human capital attributes and graduate readiness for employability

Hypothesis 2: There is a significant relationship between Social capital attributes and graduates attainment of readiness for employability skills.

Hypothesis 3: There is significant relationship between individual attributes and graduates attainment of readiness for employability skills.

Hypothesis 4: Institutions related attributes affect significantly graduates attainment of readiness for employability skills.

Hypothesis 5: Smart Active teaching environment enhances positively the Graduate Readiness for employability technical skills.

Hypothesis 6: Gender, Career and Moral Mindset of the Engineering graduates have high impact in the attainment of Graduate Readiness for employability skills and consequently affect the graduates attributing factors.

### **CONCLUSION AND RECOMMENDATIONS**

As the main objectives of the current study is to determine a Graduate Readiness for the Employability framework for Omani Engineering graduates. Specifically, this study intends to measure the level of readiness of Engineering Graduates for Employability in the HEIs in Oman, to determine the influencing factors that contribute to the readiness of Engineering Graduates for Employability in the HEIs in Oman, and to measure the moderating effects of Gender, Career mindset and Moral mindset on the relationship between Influencing factors in the readiness of Engineering Graduates for Employability in the HEIs in Oman.

Since there has been a big investment to provide quality higher educational institutes capable of providing suitable graduates to fulfill the requirements of the labor market for both public and private sectors. Therefore, graduates' readiness for employability has become a major

issue for HEIs in Oman due to the growing concern from governments and industries on the quality of the graduates. As a result, by conducting a systematic research review formality of the recent literature aiming to identify the key graduates' readiness for employability skills, the most influential graduates' attributes factors, and the essential moderating variables, and academic readiness for employability framework is designed to enhance the acquirement of readiness for employability skills that can be used as a guideline by the higher education institutes in Oman to enhance the quality of its graduates.

Based on the above findings, the study develops a graduate readiness for employability framework which analyses the effects of influential factors on the graduate readiness for employability that will be considered as an empirical study on the graduates of the engineering colleges in Oman. This study further empirically tests the factors which influence the graduate readiness for employability and its relationship with gender, moral mindset, and career mindset of the Omani engineering colleges' students. The results of the study will fill the gap in understanding the main factors affecting the attainment of graduates' readiness for employability skills in Oman. The determined framework can be further analyzed and tested. The result can be used by graduates to increase their readiness for employability, HEIs, other prospective academics, and policymakers can also use it to improve academic curricula, promote employability requirements, and appropriate policies to produce graduates ready for work. Finally, the study recommends justifying this conceptual framework by empirical data from the Engineering Graduate in the Higher Education Institutes (HEIs) and drawing a policy guideline for ensuring of readiness of engineering graduates for employability in the HEIs in Oman.

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