

The Evolution of Higher Education in Oman Under the Gravity of Globalization and Innovation



Farzaneh Yarahmadi

Abstract Globalization is described as the driving force of innovation, knowledge, individual values, and ideas. The influence of globalization and internationalization in higher education institutions has become a key theme in recent research. Higher education institutions are influenced by the social and economic diversity originating from globalization. In the present knowledge society, various new ideas are associated with higher education institutions' instruction framework. For instance, entrepreneurial universities and corporation universities have emerged through the impact of globalization. The main objectives of this chapter are to examine the significance of globalization and innovation on the evolution of higher education in Oman and to explore the readiness of universities to embark on a second academic revolution in transforming traditional teaching universities into entrepreneurial universities by introducing the triple helix model of innovation. The chapter is to study the entrepreneurial environment in higher education by reviewing the legislation, post-basic education, entrepreneurship education in the school curriculum, entrepreneurship education in the vocational training curricula, Business Simulation Centers (BSCs), national and regional milieu, and existing support structures and clusters for practicing entrepreneurship education in Oman. The current study is conceptual, and the approach consists of formulating proposals and definitions based on an extensive literature review. It has been concluded that based on the overview of the triple helix model from a neo-institutional perspective, the external forces provide a favorable environment for the initiation of entrepreneurial universities in Oman. There are many elements of the triple helix model which are now present in Oman, and the environment is propitious for the establishment of entrepreneurial universities.

F. Yarahmadi
University of Buraimi, Al Buraimi, Oman

1 Introduction

The term “globalization” refers to “the development of increasingly integrated systems and relations beyond the nation” (Marginson and Rhoades 2002). It is increasing universal connectivity, integration, and interdependence in the economic, social, technological, cultural, and political systems of the world. According to Stromquist and Monkman (2000), globalization involves numerous and extraordinary changes in every aspect of social life, especially economics and culture. Most researchers concur that globalization has had an immense impact on economic, political, and social levels. Globalization is not a new era but continued growth; therefore, it is a complex and debated concept. Globalization has highlighted the significance of being growth-oriented regarding economic indicators that incorporate per capita income, gross domestic product, gross national product, external investment, external trade including import and export of products, the rate of financial development, and new innovation, in addition to other things. Globalization is described as the driving force of innovation, knowledge, and individuals’ values and ideas. It is a flow of technology, economy, knowledge, people, values, and ideas, and it is also known as mobility in many forms such as information, knowledge, people, and employment (Carnoy 1999), resulting in an integrated global economy.

Globalization has a tremendous impact on the global economy. The global economy is widely integrated and focused on discovering new models of ideas and opportunities. Uvali’c-Trumbi’c (2002) indicated that the globalization of economics creates opportunities for the mobility of knowledge-workers and knowledge-seekers across the world. The reorientation of this global economy is caused by knowledge and information (Lafon 2009). This procedure of reorientation is portrayed as internationalization. The internationalization of higher education is one of the methods by which nations can respond to the requirements of globalization. The influence of globalization and internationalization on the character and behavior of higher education institutions has become a key theme in recent research (Enders 2004). In recent decades, the rising impacts of globalization have significantly affected institutions of higher education across different parts of the globe. Universities are encouraged to become more entrepreneurial not only for the purpose of generating income but also for increasing the national competitiveness in research, innovation, and technological advancement in order to standardize favorably in international ranking. All institutions of higher education, public and private, are rapidly evolving into global actors, following a trend found in many other industries (Naidoo 2006).

The main objectives of this study are to examine the significance of globalization and innovation on the evolution of higher education in Oman and to explore the readiness of universities to embark on a second academic revolution in transforming traditional teaching universities into entrepreneurial universities by introducing the triple helix model of innovation. The chapter is to study the entrepreneurial environment in higher education by reviewing the legislation, post-basic education, entrepreneurship education in the school curriculum, entrepreneurship education in the vocational training curricula, Business Simulation Centers (BSCs), national and regional milieu, and existing support structures and clusters for practicing entrepreneurship education in Oman.

2 Literature Review

2.1 Globalization

For the past several decades, the argument about globalization in the Arab world has not only been a common issue in academic, governmental, and other professional settings, but it has also been a very dynamic issue among individuals. Now the inquiry is how the Arab nations will survive globalization. The three conceivable responses to this inquiry are full resistance, full surrender, and surrender (Al-Harathi, *n.d.*). As indicated by Sklair (1998), since Arab nations are very consuming countries that depend on imported products and joining international organizations such as WTO, it becomes more challenging for these nations to resist and isolate themselves from being a part in globalization. Also, in the event that protection from globalization appears to be inconceivable, the next alternative would be to fully surrender to globalization. There are two types of surrender: “active” and “passive” (Al-Harathi, *n.d.*). In “active” surrender the Arab nations enthusiastically integrate and assimilate the macro-environmental factors or characters of globalization into their structures, and in “passive,” which is the forcing or imposition of globalization, the Arab countries are obliged to follow the globalization structures (Al-Harathi, *n.d.*). He stated that “the idea of integration seems very problematic to achieve because globalization requires a certain culture which Sklair (1998) calls ‘culture-ideology of consumerism’ that contradicts with most local and national cultures in Arab countries, and imposition is also difficult to accomplish because, despite the success of colonial systems in exploiting the colonized countries economically, politically, and to some extent culturally, colonizers failed to completely impose their cultures and convert colonized people from their lifestyles” (p. 112). Al-Harathi (*n.d.*) analyzed “since both the full resistance and the full surrender to globalization are impractical alternatives for the Arab nations, there could be a middle course, which can be found in some of the educational reforms in some of the Arab countries that endeavor to develop “comparative advantages” and the “new modes of productions” in order to be prepared for the challenge of globalization. It is this middle course which is needed in order to adapt and adjust the globalization requirements and at the same time endeavor to keep the local culture” (p. 113).

Oman, like any other country in the world, has faced many challenges, one of which is globalization, seen by many scholars as having a very strong impact on education in general. There are numerous studies that debate the impact of globalization on education. Globalization according to Panic (2003) has a positive influence on society. In the Sultanate of Oman, investment in infrastructure and increasing diversification of the economy has helped in controlling the dependence on oil. This kind of economy demands diversified skills and knowledge that fulfill the needs of the rising economy. Therefore, the declaration of Oman Vision 2020 to have an economy which considers education as a pathway and turning point has made education reforms as a priority in developing the educational system in the Sultanate of Oman.

2.2 *Globalization and Educational Reform in Oman*

As one of the oldest established civilized states in the Middle East, the history of Oman goes back at least 5000 years. It has played a significant role in trade routes due to its geographical position facing the Indian Ocean and linking Europe and the Middle East with Asia and Africa. The ancient history of Oman's interaction with the world and its development, especially in the field of education, is the main reason for choosing Oman among GCC countries as the case study to examine globalization through educational reforms. The development of the education system in Oman is very dynamic and has undergone several waves of modifications and reforms during the last decades.

The contemporary educational system in Oman has not been established for long. Before 1970, there were just three schools in the whole of Oman teaching the primary level; however, since His Majesty Sultan Qaboos bin Said ascended the throne in 1970, and under Majesty prudent direction, Oman has experienced economic growth and development.

Al Hinai (2006) stated that "Omani education has undergone several changes and developed qualitatively and quantitatively in different periods. The first period (1970–1975) and the second period (1976–1980) were the beginning of the spread of formal education throughout the Sultanate. The main concern of these two periods was to build schools to accommodate both boys and girls. At that time, there were two shifts working schools: a morning shift for boys and an afternoon shift for girls. The curriculum was not national but borrowed from neighboring countries. The focus here was on quantitative issues of provision. The third period (1981–1985) was characterized by continuing the spread of education with additional emphasis on improving the quality of education. This period saw progress in introducing the first national curriculum. Moreover, there was a specific focus on illiteracy and adult education. The fourth period (1986–1990) and fifth period (1991–1995) made great development in Omani education by starting higher education. For example, Sultan Qaboos University, the only state university, was opened in 1986. The sixth period (1995–2020), the "period of reform," has been characterized by many changes, such as introducing basic education, a new curriculum, and adding new subjects. Many argue that this period of reform has been a result of the conference Oman Vision 2020" (p. 499).

According to Al-Harathi (n.d.), "With the intention of preparing students for the challenges of globalization, the government of Oman has started reforming and refining the educational system from preschool to higher education which can be traced to the Oman Vision 2020 conference, which was held in Muscat in June 1995 with the aim of moving the Omani economy into a new phase of development leading to higher growth and prosperity" (p. 113). Al Maamari (2014) stated that "quantitative provision of education in Oman began in 1970 to 1995, marked by the distribution of learning for all Omani areas, and the qualitative period started in 1998 with the introduction of basic education" (p. 111).

2.3 *Globalization and Higher Education in Oman*

Although higher education development in Oman is extremely dynamic, it has endured many changes and progress. The public forces for easier access to higher education, combined with the government expectations on the contribution of the university to the socioeconomic growth of the country, have all created a fresh framework of development for higher education. In recent years, the need for refortifying the educational system framework, particularly in higher education, has been considered as a high national priority in Oman. In order to remove the gap between the education system and industry and workplace demands, His Majesty the Sultan of Oman has advised associated investors, stakeholders, and policymakers to reconsider and amend all education programs and policies. In this regard, all universities are encouraged to play a vital role in the economic growth of Oman. Though, whether Omani universities are capable of playing this role by transforming themselves into entrepreneurial organizations is a concern (Al Harthy 2014).

Globalization has a chronicled impact on higher education (Giddens 1990; Altbach and Knight 2007). In coping with globalization, higher education institutions in Oman structured three main forces: privatization, internationalization, and accreditation. The idea of privatization began when state universities were unable to absorb student demand. The Royal Decree No. 41/99 issued in 1999 promoted the development of private higher education and a resolution allowed for the establishment of private higher education institutions (PHEIs). The PHE sector was considered one of the main keys to economic development. This policy was implemented by the government through several extensive incentives, which included subsidy orders, land grants, and loan provisions with subsidized interest rates, in order to help in the growth of private colleges and universities. With an increasing number of higher education institutions, there was a need for guaranteeing stakeholders and the community about the quality of the PHEIs' provision. At this stage, the government looked outside the country for a solution through a transnational higher education (TNHE) package. TNHE is a term used widely to refer to education in which learners are not located in the awarding country (UNESCO-CEPES, Bucharest 2001). The belief is that the transnational partnership can ensure that the successes of students in the Omani HEIs are equivalent to those of students at the international partner institutions (Ameen et al. 2010). PHEIs were required to affiliate and collaborate with internationally recognized universities known as international academic affiliation, and the expectation is that the overseas universities will ensure quality and comparability of the provision of local Omani HEIs and help them develop capacity. According to the Ministry of Higher Education (2014–2015), 26 of Oman's PHEIs have entered into partnerships with more than 50 educational institutions. The Ministry of Higher Education encourages PHEIs to choose highly reputable universities as partners in academic affiliation agreements for the purpose of monitoring and improving quality, diversifying program offerings, and increasing the prestige of the degrees awarded by private HEIs.

As a reflection of the rapid growth of the higher education sector in Oman, the government recognized the requirement to launch a government body to be an expert external quality assurance agency in the field of higher education. In response to this requirement, a Royal Decree was issued in 2001 to establish the Oman Accreditation Council (OAC) to act as an official body responsible for the accreditation of HEIs and the programs offered by them. In order to increase effectiveness and to correspond with international best practices which emphasize independence and autonomy of the agencies responsible for quality assurance and accreditation of higher education, a Royal Decree was issued in 2010 establishing the Oman Academic Accreditation Authority (OAAA), replacing the former OAC. The OAAA is an independent entity by the government. The OAAA's objective is to produce a set of institutional accreditation standards and provide confidence to the public that the quality of higher education in Oman meets international standards. The OAAA encourages continuous improvement in the quality of higher education. And its responsibilities continue to include conducting quality audits of HEIs along with the periodic accreditation of local academic programs and recognition of foreign ones.

In Oman, many higher education institutions are in the process of looking for accreditation (Ross and Trevor-Roper 2015). In each case, accreditation will mean that the OAAA has determined that the program or institution has met the relevant OAAA standards. Many HEIs were audited by the OAAA, and 44 audit reports were published until March 2016. Oman's national program accreditation system is to establish broad standard programs which are internationally benchmarked but also address local needs. The OAAA has created nine standard areas of operation in higher education. Each standard has a set of sub-standards. The areas of institutional standards in Oman are (1) Governance and Management (Criterion 13), (2) Student Learning by Coursework Programs (Criterion 10), (3) Student Learning by Research Programs (Criterion 6), (4) Staff Research and Consultancy (Criterion 9), (5) Industry and Community Engagement (Criterion 6), (6) Academic Support Services (Criterion 7), (7) Students and Student Support Services (Criterion 10), (8) Staff and Staff Support Services (Criterion 10), and (9) General Support Services and Facilities (Criterion 4). It is expected that all international universities acting as partners to Omani local universities be accredited, as accreditation brings the promise of quality provision. At the international level, the OAAA joined the International Network for Quality Assurance Agencies in Higher Education (INQAAHE) through the membership of the Ministry of Higher Education in this network in 2001.

3 Globalization and the Need for Entrepreneurship Education

3.1 Need for Entrepreneurship Education

Globalization and entrepreneurship cannot be discussed in isolation and are intrinsically connected. Entrepreneurship will progressively play a significant role in contemporary economic global development. The contribution of entrepreneurship to economic growth and employment creation cannot be denied. Therefore, worldwide, there is a need for entrepreneurship education which associates entrepreneurial activities with economic growth. In developed countries, there is harmony in the importance and significance of entrepreneurship at the national level, but this is not the case in many developing countries. Over the last few decades, in the Arab Gulf region, there have been some new entrepreneurship development initiatives, such as the Qatar Science and Technology Park, Knowledge Economic City in Saudi Arabia, and Dubai's Mohammed bin Rashid Al Maktoum Foundation, all of which are promising initiatives that are much needed. Entrepreneurship will inspire developing countries in terms of long-term growth and increase in productivity.

Since His Majesty ascended the throne, a new era began in the modern history of the country, causing Oman to experience healthy economic growth and remarkable political stability. Oman has been positioned as one of the most progressive countries in the Middle East due to the oil and gas sector, which dominates the economy. However, since it is predicted that Oman has less than 20 years of oil reserves left, the government must reduce its reliance on its oil revenues by diversifying the private sector. Economic and social challenges such as dropping oil prices, unemployment, the labor market, cultural and social norms, education, and training have been key factors in pressuring the government to realize the need to foster the entrepreneurial spirit in the country and open up the concept of entrepreneurship and self-employment, especially among the youths, as key mechanisms in dealing with these challenges and diversifying the economy. As a part of this movement, the Sultanate of Oman is fostering the shift toward an entrepreneurial society and culture by training well-educated entrepreneurial citizens who have the spirit and interest to think in innovative ways and the courage to face and accept the challenges facing them (Al-Shanfari 2012). In recent years, entrepreneurship and entrepreneurship education have gained special attention in Oman. The objective is to progress in encouraging entrepreneurial mindsets in society with effective action. However, in developing countries that have a small private sector and low national entrepreneurial activity, encouraging entrepreneurship education is not an easy task. According to Al-Shanfari (2012), there were no issued IPOs for any new businesses with high growth in the Muscat Securities Market (MSM) for the last 10 years.

Since 1970, with the accession of His Majesty Sultan Qaboos, the government of Oman has considered Technological, Vocational, Education, and Training (TVET)

as one of the main strategic policies of Oman for the development of human resources. This practice encourages entrepreneurship education at the national level and has paved the way for building a strong link with different stakeholders as well as strategic partners. Various initiatives and pilot projects at the national, regional, or international level have been implemented to promote entrepreneurship and to provide entrepreneurship education especially among youth, students, and unemployed; these projects also encourage young entrepreneurs to take up independent business options such as the SANAD program, Know About Business (KAB), INJAZ, the Intilaaqah program, or Business Simulation classes (BSC). A jointly report organized by UNESCO-UNEVOC (2013) discusses the initiatives as follows:

The SANAD program was started in October 2001 under the Ministry of Manpower with an objective to promote entrepreneurship and the development of small-scale enterprises among young people by providing loans and expertise to new graduates. The SANAD program provided financial and technical support to 28,000 Omanis until 2010 (Khan et al. 2005). Know about Business (KAB) was introduced in 2007, as the government gave importance to training methodology and training entrepreneurship, to create awareness about entrepreneurship among youth and to prepare youth to be more enterprising in their lives and in their careers. The main focus of KAB is the training of entrepreneurs in management skills for developing an entrepreneurial attitude through entrepreneurship education. KAB is effectively being applied in colleges of technology and vocational training centers. The students are trained before they start their venture out into the job market. Injaz Oman was established in 2005. The organization provides dynamic programs that contribute to the development of young people's skills and also improve their innovative and leadership abilities. The aim is to inspire and prepare young people to succeed in a global economy. Sultan Qaboos University and the Higher College of Technology participated in the program in 2007–2008. The Intilaaqah program was launched in Oman in 1995. It is part of the Shell group worldwide initiative, LiveWIRE. The purpose of Intilaaqah is to inspire and encourage unemployed young Omanis to consider the option of starting their own businesses, and it helps the young entrepreneurs by providing them training, counseling and consultancy services which allow them to start their own venture (Khan et al. 2005). BSC (Business Simulation classes) is a project being developed at Nizwa College of Technology. This project integrates entrepreneurship with college academic programs. It aims to offer proper training and integrate entrepreneurial culture within the college academic programs by providing an actual functioning business enterprise, totally managed by students (pp. 2–4).

3.2 Need for Entrepreneurship in Higher Education

Considering the impact of globalization on higher education and an uncertain world economy, governments and educational institutions worldwide have given more attention to entrepreneurship. Entrepreneurship in higher education is now recognized as a major driver to innovation. The significance of entrepreneurship education is derived from the importance of the entrepreneurs to the economic system. Universities and other higher education institutions play a significant role in providing entrepreneurship education, training, and technical assistance to existing and

potential entrepreneurs. Government agencies have also sought to develop creativity among students through entrepreneurial activities and programs.

3.3 *The Need for Entrepreneurship Universities*

With the arrival of globalization, liberalization, and privatization in the domain of higher education, traditional universities as social institutions are no longer sustainable. According to Etzkowitz (2004), the second academic revolution is transforming the traditional teaching and research university into an entrepreneurial university. The advent of the entrepreneurial university is an implication of internal development of the university and external influences on the university, in conjunction with the increasing role of knowledge in society- and knowledge-based innovation, which are known as the drivers of productivity and economic development. Liesner (2006) indicated that one common definition that is well accepted in the entrepreneurial university discussion depicts the entrepreneurial university as a university that behaves like an enterprise, competes for external research funding, and emphasizes business-like efficiency. Wissema (2009) highlighted the current transformation through the concept of the *Towards the Third Generation University*. The traditional university is usually engaged in two main activities: research and teaching. Knowledge is transferred to the community through students, who are later incorporated into the labor market, and by publications in scientific journals, which can take a considerable period of time. The traditional character of the university in the community—as a knowledge inventor through research and technology, as a knowledge transfer agent, and as a supporter of economic growth—has been reconsidered by entrepreneurial universities (Bercovitz and Feldman 2006). The new exercises expected by entrepreneurial universities intend to facilitate the procedure toward taking an interpretation of research and making it into applications that can easily be implemented. This conversion is promised by the creation of associations with industry that provides new resources and intangible assets to the universities. According to Inzelt (2004), since entrepreneurial universities are involved in partnerships, networks, and other relationships with public and private organizations that are an umbrella for interaction, collaboration, and cooperation, many different interactions may exist. This means that the entrepreneurial university implements several strategies and a new institutional configuration to work together with the government and industries to facilitate the generation and exploitation of knowledge and technology (Leydesdorff and Meyer 2003). In Oman, studying entrepreneurial universities requires the investigation of internal and external aspects which play a dynamic role in conversion toward entrepreneurial culture.

3.4 The Triple Helix Approach

Another popular model for the entrepreneurial university is the “triple helix model” (Etzkowitz and Leydesdorff 2000) which is based on academic-industry-government linkages forming a spiral pattern of cooperation (Goldstein 2010). The conceptual framework of triple helix began in the mid-1990s, a time when universities and industry were encouraged to work together more closely for the benefit of society. Etzkowitz and Leydesdorff (2000) further explained the triple helix of university-industry-government relations as a model for studying both knowledge-based and developing economies. According to Al Harthy (2014), “The Triple Helix is described as one of the critical ideas that contribute to explaining the innovation system concept as an interactive process” (p. 85). The networks of university-industry-government relations can be deliberated as a neo-institutional arrangement. The triple helix model considers universities as key players in national socio-economic development (Owen-Smith et al. 2002). Universities play an important role in developing skilled human resources which is an important factor for the development of knowledge-based society and knowledge-based economy. For the last few decades, the role of higher education institutions in the modern economy changed dramatically. Universities now face new challenges and a new strategic orientation based on globalization, innovation, and increased international competition. The conceptual framework of triple helix offers a comprehensive perspective for understanding the sources and development paths of innovation and can be an attractive model that aims to improve one’s knowledge base and create an environment of excellence around research themes with commercial potential and innovative firms.

4 Discussion

4.1 The Triple Helix as a Model of the Knowledge-Based Economy

In the triple helix model of the knowledge-based economy, the main institutions have first been defined as university, industry, and government (Etzkowitz and Leydesdorff 1995), and innovation is increasingly based upon a triple helix of university-industry-government interactions. Etzkowitz (2003) highlighted the importance of knowledge and the role of the university as incubation of technology-based organizations has given it a more noticeable place in the institutional firmament. The entrepreneurial university plays a crucial role in putting knowledge to use and in increasing the input into the creation of academic knowledge. As firms advance their technological level, they move closer to an academic model and training in higher levels and in sharing of knowledge, and the government acts as a public entrepreneur and venture capitalist (Etzkowitz 2003). Halibas et al. (2017) highlight that education in the form of knowledge and ideas is the building

block in an innovation and knowledge economy that drives social change and improves the quality of life (OECD 1997), and HEIs and research institutions play a key role in forming a knowledge-based society.

The World Bank developed a Knowledge Economy Index (KEI) in 2012 which ranked Oman as 47th among 145 countries in terms of its readiness in becoming a knowledge-based economy. Oman's KEI is measured in terms of six sub-indexes: (a) Knowledge Economy Index (with a score of 6.14/10); (b) Economic Incentive Regime Index (6.96/10); (c) Education Index (5.23/10); (d) Information and Communications Technologies Index (6.49/10); (e) Knowledge Index (5.87/10); and (f) Innovation Index (5.88/10). As innovation is a major factor in a knowledge economy, it has been considered an important strategy to address sustainability issues and promote economic growth (Bjork 2016). Considering the Omani score (5.88 out of 10) in the Innovation Index, Oman must take full advantage of its readiness in becoming a knowledge economy, while it still has the resources to support an efficient transition (Al-Rahbi 2008). The following are several practices toward becoming a knowledge-based economy.

4.1.1 Research and Innovation

Within the context of Oman, higher education institutions are now transforming from being traditional teaching institutions to research-oriented institutions for socioeconomic development of the region. In 2012, the new instructions of His Majesty the Sultan to support higher education institutes can be noticed by establishing new research projects and teaching programs that focus on innovation and entrepreneurship. The government has authorized The Research Council (TRC) to take the lead role in fostering and supervising research innovation in the region through close cooperation with relevant stakeholders and various research programs, including the Open Research Grant (ORG), Strategic Research Grant, Faculty Mentored Undergraduate Research Award Program (FURAP), and Research and Innovation Award. For example, TRC established the Industry Innovation Centre (IIC) in order to simplify the collaboration between the industrial sector and the academic sector, as Omani universities have weak linkages and collaboration networks. The other programs and projects of TRC are the establishment of the Business Incubation Program, Innovation Park Muscat (IPM), Oman Virtual Science Library (OVSL), Oman Research and Education Network (OMREN), and The Survey on Science and Technology Indicators. Another important initiative by the government is the OAAA, which, as discussed previously, is authorized by the government to foster quality in higher education.

4.1.2 Legislations

According to Oman Vision 2020, Oman has planned an instruction framework which propagates deep-rooted learning to guarantee that all Omanis have the

required skills and capabilities for life and for the workforce. Focus on the skills required for life; workforce and life-long learning have all stressed the commitment toward incorporating entrepreneurial skills within the education system. The Ministry of Education and Higher Education has developed the aims of post-basic education, which is to cultivate different types of problem-solving thinking and abilities, as well as employ scientific thought in practical real-life situations. Post-basic education also offers an opportunity for students to continue the development of entrepreneurship skills required for higher studies, employment, and career planning. The development of problem-solving and decision-making skills is essential to entrepreneurship. It is clear that the legislation of the Ministry of Education supports entrepreneurship education. Vocational training centers and colleges also have several legislations that support entrepreneurship education.

Entrepreneurship Education in the School Curriculum The Ministry of Education is responsible for the development of a curriculum for public schools in Oman. The aim is to produce self-sustaining energetic young entrepreneurs. The curriculum emphasizes preparing the student for a productive life; thus there is a great deal of focus on life skills such as critical and creative thinking, time management, and self-teaching (Masri et al. 2010).

Entrepreneurship Education in Post-Basic (Secondary) Education In this stage, the focuses are on developing positive attitudes toward society, work, environment, and continuing the development of life and career planning skills. It inspires more independence in learning, and it also prepares students with an entrepreneurial mindset and encourages career planning at an early stage (Masri et al. 2010).

Entrepreneurship Education in Higher Education Higher education institutions are also focused on preparing students for an entrepreneurial career by providing knowledge, skills, and attitudes. There are several courses in curricula that directly or indirectly support entrepreneurship skills whether in class or through extra-curricular activities. In a major boost for the small- and medium-sized enterprises, a mandatory semester-long course on entrepreneurship has been introduced for all higher education students. All students entering higher education since Fall 2014 must take this course. A significant number of recommendations of the strategy have been executed or are currently being executed. Entrepreneurship and entrepreneurship education are receiving increased consideration in Oman, and this consideration requires various procedures such as research, expenditure, curriculum development, teacher training, and collaboration with NGOs (Masri et al. 2010).

Entrepreneurship Education in Vocational Training The Ministry of Manpower is responsible for developing occupational standards, learning outcomes, and curricula in vocational training centers in order to meet the requirements of the Omani labor market. The focus is to provide students with life skills and technical/technological education (Masri et al. 2010).

The National Career Guidance Centre (NCGC) The center aims to provide career guidance to students and job seekers. It also focuses on training career guidance experts to enable them to help students in the transition from school to higher education or to the job market. Several programs have been implemented by NCGC that promote entrepreneurship education. For example, it participates in several events to assist students in identifying their talents and abilities when considering their future career (Masri et al. 2010).

Business Simulation Centers (BSCs) The Ministry of Manpower has also initiated and implemented the development of Business Simulation Centers (BSCs) to support learning and training using modern techniques in several institutions. In collaboration with the Ministry of Manpower, many projects have also been established by HEIs and have been funded by the private sector. Those projects aim to offer appropriate training and integrate the institution's academic programs with an entrepreneurial culture (Masri et al. 2010).

4.1.3 Existing Support Structures and Clusters in Oman

At the National Level

Industry Collaboration: Many initiatives have been developed by industries to encourage young people to start their own businesses, such as the Career Awareness Program which was sponsored by Shell Oil Company and delivered to students at varying school levels. The program aims to provide specialized skills training to familiarize students and job seekers with those skills and allow them to more easily find jobs (Masri et al. 2010).

Incubator Program: The SANAD program intends to encourage youth business ventures by providing loans and expertise to fresh graduates. It promotes entrepreneurial education by presenting fresh graduates with ways and means of starting their own businesses (Masri et al. 2010).

At the Regional Level

Nonprofit Organization Involvement: INJAZ Oman is a nonprofit organization which aims to inspire and prepare young people to succeed in a global economy. It offers a practical learning experience to youth in enterprise education from school to university level. As the INJAZ Oman Board of Directors includes prominent companies in Oman, it has strong links and support from the industry. INJAZ Oman also works very closely with INJAZ Al-Arab (Masri et al. 2010).

5 Conclusion

The discussion reveals that the university-industry relation where the government plays the role of establishing rules and regulations has already been initiated in Oman. Universities in Oman have started to make some initiatives in order to

become entrepreneurship universities based on their degree of flexibility. However, they are facing serious challenges in the implementation of an entrepreneurial, innovation-oriented mission. For example, for allocation of funds, the largest percentage of the funding for the Sultan Qaboos University (SQU) comes from the government, but for the private universities, it comes from government subsidies in addition to student fees. The industry sector as a knowledge user and technology transfer agent has been identified as a strategic partner in the era of entrepreneurship economies but because of industry size and industry capability in Oman, the sector is not ready to accommodate the research and innovation outcomes and therefore cannot be a strategic contributor. Although all policy action undertaken by the government and industry to promote entrepreneurship education could generally be seen as a good indicator of the readiness of Oman to initiate entrepreneurial universities, future studies should provide more case analysis of universities which will undergo a transformation process to become entrepreneurial universities and evaluate how successful they are in Oman.

It has been concluded that based on the overview of the triple helix model from a neo-institutional perspective, the external forces provide a favorable environment for the initiation of entrepreneurial universities in Oman. There are many elements of the triple helix model which are now present in Oman, and the environment is therefore propitious for the establishment of entrepreneurial universities. Nevertheless, the Sultanate still has a long way to go and faces numerous obstacles if it is to develop a strong entrepreneurship environment in education. One such obstacle is that the most important relationship between industry and universities comes in the form of a research project. However, the final question that arises then is: will the research from partner universities be strong enough to be used in industries?

As mentioned earlier, additional research is needed to investigate a model of entrepreneurial universities in Oman, where priority is given to knowledge absorption readiness and this research should be validated by case analysis of universities undergoing the transformation. The experience might lead to better adoption of entrepreneurial university models and could be used to assess core processes in the transformation of traditional educational teaching strategy. Last but not least, more studies are needed to assess the role of universities in the proposed ecosystem discussed earlier, and this may help the country in facilitating efficient technology transfer and absorption ability when combined with building substantial national innovation policies Oman.

References

- Al Harthy S (2014) The entrepreneurial university and the entrepreneurial environment: organizational analysis and policy considerations. University of Manchester, Great Britain
- Al Hinai K (2006) The effectiveness of educational planning centrality in the education system in Sultanate of Oman. PhD Thesis, College of Social and Human Sciences

- Al-Harhi H (n.d.) Globalization and the necessity of educational reform in the Sultanate of Oman. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.97.9793&rep=rep1&type=pdf>. Accessed 5 Dec 2010
- Al-Maamari S (2014) Education for developing a global Omani citizen: current practices and challenges. *J Educ Train Stud* 2:111
- Al-Rahbi I (2008) An empirical study of the key knowledge economy factors for sustainable economic development in Oman. Doctoral dissertation, Victoria University. http://vuir.vu.edu.au/2033/1/Al-Rahbi_Ibrahim_PDD_thesis_April_2009.pdf
- Al-Shanfari DA (2012) Entrepreneurship in Oman: a snapshot of the main challenges
- Altbach PG, Knight J (2007) The internationalization of higher education: motivations and realities. *J Stud Int Educ* 11(3):290–305
- Ameen H, Al-Barawani T, Chapman DW (2010) Cross-border collaboration for quality assurance in Oman: contested terrain. In: *Cross-border partnerships in higher education: strategies and issues*, vol 9780203849262. Routledge Taylor & Francis Group, London, pp 133–150
- Bercovitz J, Feldman M (2006) Entrepreneurial universities and technology transfer: a conceptual framework for understanding knowledge-based economic development. *J Technol Transf* 31:175–188
- Bjork F (2016) Social innovation, sustainable development, and governance. PowerPoint Presentation, Sweden. <https://www.slideshare.net/lufrbj/si-sd-governance>
- Carnoy M (1999) Globalization and educational reform: what planners need to know. The United Nations Educational, Scientific and Cultural Organization, Paris
- Enders J (2004) Higher education, internationalization and the nation state: recent developments and challenges to governance theory. *High Educ* 47:361–382
- Etzkowitz H (2003) Innovation in innovation: the triple helix of university-industry government relations. *Soc Sci Inf* 42(3):293–337
- Etzkowitz H (2004) The evolution of the entrepreneurial university. *Int J Technol Glob* 1(1):64–77
- Etzkowitz H, Leydesdorff L (1995) The triple helix—university-industry government relations: a laboratory for knowledge based economic development. *EASST Rev* 14:14–19
- Etzkowitz H, Leydesdorff L (2000) The dynamics of innovation: from National Systems and “Mode 2” to a triple helix of university-industry-government relations. *Res Policy* 29(2):109–123
- Giddens A (1990) *The consequences of modernity*. Polity Press, Cambridge
- Goldstein HA (2010) The entrepreneurial turn and regional economic development mission of universities. *Ann Reg Sci* 44(1):83–109
- Halibas AS, Sibayan RO, Maata RLR (2017) The penta helix model of innovation in Oman: An HEI perspective. *Interdiscip J Inf Knowl Manag* 12:159–172
- Inzelt A (2004) The evolution of university-industry-government relationships during the transition. *Res Policy* 33(6–7):975–995
- Khan SA, Ghosh AP, Myers DA (2005) Women entrepreneurship in Oman. In: *Proceedings of the 50th world conference of the International Council for the Small Business (ICSB)*, Washington, DC, 15–18 June 2005
- Lafon A (2009) Globalization and higher education: what might the future bring? Programme on institutional management in higher education. OECD Publishing. <http://www.oecd.org/edu/imhe/44302672.pdf>. Accessed 16 Feb 2015
- Leydesdorff L, Meyer M (2003) Triple helix indicators of knowledge-based innovation systems. *Scientometrics* 5(82):191–203
- Liesner A (2006) Education or service? Remarks on teaching and learning in the entrepreneurial university. *Educ Philos Theory* 38(4):483–495
- Marginson S, Rhoades G (2002) Beyond national states, markets, and systems of higher education: a glonacal agency heuristic. *High Educ* 43(3):281–309
- Masri MM, Jemni AM, Al-Ghassani A, Badawi A (2010) Entrepreneurship education in the Arab States. A joint project of UNESCO and the StartREAL Foundation. Regional synthesis report

- Naidoo V (2006) International education: a tertiary-level industry update. *J Res Int Educ* 5 (1):323–345
- OECD (1997) National innovation systems. Organisation for Economic Cooperation and Development, Paris, p 10. <http://www.oecd.org/science/inno/2101733.pdf>
- Owen-Smith J, Riccaboni M, Pammolli F, Powell WW (2002) A comparison of U.S. and European university-industry relations in the life sciences. *Manag Sci* 48(1):24–43
- Panic M (2003) Globalization and national economic welfare. Palgrave Macmillan, New York
- Ross J, Trevor-Roper S (2015) The case for national program accreditation in the sultanate of Oman. OQNHE Conference, Muscat, 24–25 February
- Sklair L (1998) The sociology of progress (International library of sociology). Routledge, London
- Stromquist N, Monkman K (2000) Globalization and education: integration and contestation across cultures. Rowman and Littlefield, Maryland
- UNESCO-CEPES, Bucharest (2001) Code of good practice in the provision of translational education. <http://www.cepes.ro/hed/recogn/groups/transnat/code/code.htm>
- UNESCO-UNEVOC (2013) Promising Practices/Entrepreneurship Education, Oman (Rep.). <http://www.unevoc.unesco.org/go.php?q=Promising+Practices+List&id=1>
- Uvali'c Trumbi'c S (2002) Globalization and the market in higher education: quality, accreditation and qualifications. UNESCO, Paris
- Wissema G (2009) Towards the third generation university: managing the university in transition. Edward Elgar, London