

The role of entrepreneurship education and training on creation of the knowledge economy

Entrepreneurship
education and
training

Qatar leap to the future

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Abstract

Purpose – The purpose of this paper is to explore the experience of Qatar with entrepreneurship education and training, and its contribution in creating a knowledge-based economy. By doing so, the paper will contribute towards raising awareness about the state of entrepreneurship education, training and the knowledge economy in Qatar.

Design/methodology/approach – The research design for this paper is a descriptive and interpretive case study that is analysed through qualitative methods. Secondary information is analysed through descriptive statistics.

Findings – The main finding of this paper is that although Qatar has launched many initiatives of entrepreneurship education and training to help diversify its economy by creating knowledge-based economy, the data show that there is some improvement in Qatar's ranking in the Knowledge Economy Index.

Research limitations/implications – The main limitation of this study is the unavailability of secondary data for a long period of time.

Social implications – The main policy implication that can be derived from the findings of this paper is that entrepreneurship education and training alone cannot create a diversified and knowledge-based economy in a short period of time. In fact building a knowledge economy requires more than introduction of entrepreneurship education and training. In addition to entrepreneurship education it requires improvement in the national innovation system, large investment in information and communication technology and a good macroeconomic performance. Moreover, the success of entrepreneurship education and training in fulfilling its objective requires a comprehensive strategy to be implemented over a long period of time.

Originality/value – The paper represents an original work that links entrepreneurship education and training with the knowledge economy. This is the first paper that handles this issue in the context of Gulf countries.

Keywords Entrepreneurship training, GCC, Qatar, Entrepreneurship, Entrepreneurship education, Knowledge economy

Paper type Case study

Introduction

Many GCC countries experienced unprecedented economic difficulties during the period of international financial crisis of 2008-2009. During that period all these countries went through a large budget deficit and, for the first time, some of them suffered from internal debt problems. These economic difficulties happened again during the rapid fall in oil prices that began in the fourth quarter of 2014. The governments of these countries have been trying to avoid the consequences of such problems by designing and embarking on strategic plans that aim for economic diversifications through the creation of a knowledge economy. These plans involve many policy packages and initiatives that were directed towards economic diversification and sustainable economic growth. For example, Qatar launched its Qatar National Vision (QNV) 2030, supported by the Qatar National Strategic Plan (QNSD) (2011-2016). Together these two policies aimed to transform the Qatar economy into a diversified and competitive knowledge-based economy (Qatar National Vision, 2008). Along the same lines, Saudi Arabia launched its 2030 development vision that placed economic diversification as its main goal. This trend is evident in many other GCC countries.



Entrepreneurship development is one of the areas embraced by these countries to help in diversifying their economies. In addition to other policy packages, entrepreneurship education and training programmes have been introduced as policy instruments to foster innovation and enhance entrepreneurship development. This initiative is based on the belief that entrepreneurship education and training can help in developing the attitudes, knowledge and skills associated with the practice of entrepreneurship in these countries. Moreover, it is argued that entrepreneurship education can help in building a strong personal character and equip students and trainees with the right set of skills and knowledge for establishing their own business, thereby contributing to providing jobs for people in different sectors of the economy (Efe, 2014; Anho, 2013). Emanating from this kind of argument, considerable attention has been paid to entrepreneurship education and training throughout the GCC countries (Gibb *et al.*, 2012).

As one of the GCC countries, Qatar has introduced entrepreneurship education and training to serve the diversification and creation of a knowledge-based economy. Despite the fact that entrepreneurship education and training has been introduced in Qatar for many years, few studies have been undertaken in this area and the body of available research remains limited. They are many studies around the globe that explore and analytically investigate the entrepreneurship education from different country contexts including Brazil, France and Poland (Jones *et al.*, 2008). Moreover, many studies have been undertaken to investigate the nexus between entrepreneurship education and economic growth, unemployment and the knowledge economy from different country contexts. However, there is only a limited literature concerning entrepreneurship education and training within the context of Qatar. Even the existed literature does not consider the link between the entrepreneurship education and knowledge economy. Therefore, the literature gap is evident and there is unquestionably a need for study to bridge this gap.

The purpose of the present paper is to build on this initial work, by exploring the experience of entrepreneurship education and training in Qatar. Such kind of exploration will shed some light on Qatar's experience and give some insight on its strengths and drawbacks if they exist. The significance of this study stems from the need for a common understanding of the importance of entrepreneurship education and training for the Qatar economy, and its role in enhancing Qatar's need and intention to create a knowledge-based and diversified economy.

Overview of the Qatar economy

The Qatar economy has experienced fast economic growth since the late 1990s. This is due to the increase in production of the hydrocarbon sector, caused by the extraction of gas from North field. The production of hydrocarbon has driven much of Qatar's GDP growth, current account balance, government budget surplus and socio-economic development. For about two decades, the Qatar economy has grown by unprecedented rates, amounting in some years to more than 10 per cent.

As depicted in Table I, Qatar has experienced good economic performance during the last five years following the international financial crisis. From 2011 to 2015, Qatar's real GDP expanded at an annual average rate of 6.6 per cent. Much of this expansion was caused by sharp rise in prices and the production of gas and oil that occurred during the period 2011-2014. This rate of economic growth is very high in comparison to both developed and developing countries, outstripping even that of the emerging economies, *vis-à-vis* Brazil, India and South Korea. Table I shows that Qatar's GDP per capita remained high; this was at the level that made Qatar rank as the top country in the world. Unemployment rates have remained low for most of the stated years, lower than any country of the world. The rate of inflation was generally low in most years, but it slightly increased to a level of 3 per cent

pushed by high spending on infra-structural projects and a high demand for goods and services caused by an expansion of the population. Finally, both government budget and current account registered a remarkable surplus in almost all the six years. As can be seen from Table I, Qatar has consistently achieved large fiscal and current account surpluses, sometimes exceeding 10 per cent of GDP.

These economic achievements have been accompanied by social and institutional improvements. First, the good economic performance has enabled Qatar to launch many infra-structural projects that would pave the way towards building an advanced economy and maintain a sustainable economic development. Moreover, the financial resources that were generated by the vital economic performance have helped the government to build world-class education and health institutions that improved Qatar's record in the human development indicator. For example, Qatar has universal enrolment of boys and girls in primary and secondary education, and child mortality rates have dropped dramatically. In 2011, Qatar ranked 37th on the United Nations Human Development Index, out of 187 countries.

It should be noted that the dependency of the Qatar economy on the hydrocarbons sector put it at high risk. This is because most of the economic achievement is attributed to the development of the hydrocarbons sector; in fact most of the expansion would not have occurred without the hydrocarbons. Construction, utilities and downstream transport services (margins from the shipment of LNG) all grew in response to the needs of a booming hydrocarbons sector. Growth in the petrochemical sector and in some energy-intensive activities was made possible by the availability of cheap feedstock.

Qatar recognised this risk, and in order to avoid it, has planned to diversify its economy and transform it from being dependent on hydrocarbon industries to a knowledge-based economy, with the private sector playing a significant role. Qatar made diversifying its revenues and creating a knowledge-based economy a key goal in its QNV 2030. This goal is clearly stated in the QNV 2030, which was launched in October 2008. The QNV aims at transforming Qatar into an economically and socially advanced country by 2030, capable of maintaining its own development with a high standard of living for its entire population for generations to come.

Its plan rests on four pillars: human development, social development, economic development and environmental development. Each one of these four pillars is clearly defined and the means through which they can be accomplished is well defined and clearly specified. For example, economic development is determined to be achieved through the creation of a competitive and diversified economy that rests on productive sectors with comparative advantage. Moreover, it is stated that economic development can be accomplished through the construction of a world-class infrastructure and excellent education and training institutions that provide high-quality education and foster innovation, creation and entrepreneurship. The ultimate objective of this policy is to create a

Economic indicator	2000-2010 average	2011	2012	2013	2014	2015
Gross domestic product (GDP) (in billion US \$)	150	170	189.7	201.3	209.5	203.3
GDP per capita (thousand US \$)	80	99.3	103.5	98.7	93.9	90.2
Real GDP growth %	10	13.0	6.0	6.3	4.0	3.9
Fiscal balance (% of GDP)	6.3	6.9	11.4	14.3	16.1	5.3
Current account balance (in billion US \$)	38.4	48.2	62.4	60.5	49.4	13.7
Inflation rates	1.3	1.9	1.9	3.1	3.1	1.9
Unemployment rates	0.5	0.6	0.5	0.3	0.3	0.4

Source: Ministry Development Planning and Statistics, Qatar

Table I.
Qatar macroeconomic
indicators

knowledge-based economy characterised by innovation, entrepreneurship, excellence in education, a world-class infra-structural backbone, the efficient delivery of public services and a transparent and accountable government.

A knowledge economy and entrepreneurship education and training: a literature review

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A knowledge economy and education and training are closely related. The relationship emanates from the fact that education and training is one of the four main pillars of a knowledge economy. A knowledge economy is one in which firms employing educated and innovative employees have come to play a predominant role in the creation of wealth (Bashir, 2013). The OECD defines a knowledge economy in the following way: "Knowledge-based economies are economies which are directly based on the production, distribution and use of knowledge and information". As can be understood from these two definitions a knowledge economy depends largely on availability of high skilled and educated labour.

Entrepreneurship education and training plays an important role in creating knowledge through scientific research and experiments, as well as through transferring knowledge and skills to students and trainees. As such, education and training is considered by the World Bank as one of the four main pillars of knowledge economy. The other three pillars are economic incentive and institutional regime, innovation and technological adoption and information and communication technologies (ICTs) infrastructure. As a recently developed field of study, entrepreneurship education is very much closely associated with the knowledge economy.

Entrepreneurship education and training gains importance over time, because it is believed that it has desirable outcomes on entrepreneurship development, unemployment, economic growth, economic diversifications and a knowledge-based economy. Scholars have introduced entrepreneurship education as essential for influencing attitudes, aspirations and intentions of individuals striving to launch new ventures (Fritsch, 2004; Acs and Armington, 2006; Schramm and Litan, 2009). Moreover, scholars see entrepreneurship education and training as an enabler that prepares individuals for creation, innovation, risk taking and investment opportunity spotting. All these skills enable individuals to turn obstacles and weaknesses into opportunities and business ideas, and then utilise opportunities to start a new venture. Furthermore, some scholars cite entrepreneurship education and training as a mechanism that equips individuals with skills of negotiation, leadership, new product development, creative thinking and innovation (Kuratko, 2003).

Entrepreneurship education and training is of critical importance for the creation of a knowledge economy; this is due to its prominent role in building innovative and risk taking human capital through the transfer of knowledge and skills from teachers and trainers to students and trainees. Thus, the educated and trained people can capitalise on the acquired knowledge and skills to initiate innovative business ideas. Moreover, entrepreneurship education and training has the possibility of enriching the mindset of young people and inspire them to turn the results of scientific research into real business projects (Ahmad, 2013). Furthermore, it is argued that entrepreneurship education and training programmes that are delivered to prepare students with the required knowledge and skills will enable them to identify opportunities, understand a customer's perception, generate new ideas and develop business plans, as well as understanding and evaluating environmental, institutional and political issues (Cheng *et al.*, 2009). Along this line of thinking, Alain (2009) and Akudolu (2010) argued that entrepreneurship education is the nurturing of entrepreneurial mindsets, attitudes and skills that allows the individual to take charge of the economic situation and identify opportunities (Bakar *et al.*, 2015).

At the theoretical level, the impact of entrepreneurship education and training on the knowledge economy is well established and its outcomes are widely recognised. Nevertheless, at a practical level, the determination of its outcomes on the knowledge economy is a complex and multidimensional challenge, regardless of whom a programme targets. This complication can be attributed to the great variations in the programmes themselves, and difficulties in isolating intended outcomes.

With regard to the programmes, there are different types and various ways through which they can be delivered (Nurmi and Paasio, 2007). In Finland, this education is called enterprise ownership; it focusses on knowledge that is needed for the establishment of a new business. In Great Britain and Ireland, it is called enterprise education and its content is more focussed on building individual capacity. In the USA, and many other countries, it is known as entrepreneurship education; its curriculum focusses on both building individual capacity and the skills that are need for establishing and running businesses. Likewise, there are different ways and outcomes for entrepreneurship education and training. Thus, the diversity of programmes, methods of delivery and their intended learning outcomes provide opportunity for research to be undertaken to enrich literature with different results (Bakar *et al.*, 2015; Bin Yusoff *et al.*, 2015).

Isaacs *et al.* (2007) assess the entrepreneurship education and training in South Africa at further education level. They noted that South African Government has recognised the importance of entrepreneurship education and make it compulsory to the pupils up to grade 9. Nevertheless, about 60 per cent of high schools in South Africa do not present any entrepreneurship training programmes. Moreover, they argued that teacher training institutions in South Africa have not yet responded to the society's rising demand for entrepreneurship education. With respect to entrepreneurship training they found that infrastructure is poor, training material is insufficient and funding is inadequate and qualified educators are scarce.

Fernandes *et al.* (2017) examined the role of knowledge on new business creation and entrepreneurship development. Their main finding is that knowledge plays a significant role in new business creation. As such, they argue that people with academic background on entrepreneurship education view entrepreneurship as a good career option and a good opportunity for future employment. Building on this, they confirm that the main knowledge-based factors driving the creation of new businesses are as follows: awareness of possessing the capabilities needed to create new firms; entrepreneurial experience; and experience investing informally in several firms.

Timan and Gangi (2015) examine the state of entrepreneurship education in Sudan using quantitative analysis. Their result reveals that decision makers are not aware with the importance of entrepreneurship education and the courses are very rare. In almost all Sudanese public university there was only one programme of entrepreneurship education. However, many colleges teach entrepreneurship as a subject or topic within different courses. Sinkovec and Cizelj investigate the role of entrepreneurship in development of mindset for creation of knowledge economy. To do so they compiled a large number of information from different government documents across the USA and EU. They found that entrepreneurship is not yet sufficiently integrated into the curriculum of the European universities. Even in those universities entrepreneurship courses are offered mainly in business and economics studies. Moreover, they emphasise that while the demand for learning about entrepreneurship is increasing, there is a shortage of human resources and funding for this type of education, making it impossible to meet this demand fully.

The European Union undertook study to measure the impact of entrepreneurship education at higher education institutions on the entrepreneurship key competence; the intentions towards entrepreneurship; the individual's employability; and society and the economy. The main finding of the study is that entrepreneurship education has a positive

impact on the entrepreneurial mindset of young people, their intentions towards entrepreneurship, their employability and finally on their role in society and the economy.

Akuhwa *et al.* (2015) introduce the concept of knowledge-based entrepreneurship (KBE) as a very important socio-economic phenomenon that drives innovation, economic growth and development. Along this line of thinking they argue that KBE is an effective mechanism for the transformation of knowledge into innovation and new economic activities. Building on this view, they call for introduction of entrepreneurship education at all education levels. They believe that training the entrepreneurs through life-long learning and experiments help them to acquire tacit knowledge, and to transform the tacit knowledge into explicit knowledge within the ethos of relevant science and technology, innovation and creativity and ambidextrous entrepreneurial culture.

Nour (2013) employed a descriptive and comparative approach to examine the existence and development of the knowledge economy in the Arab region. She found that the knowledge economy exists in the Arab region and coincides with a substantial knowledge gap compared to other world regions. In addition, she found that the Arab countries vary in the knowledge economy indicators in accord with the variations in the structure of their economies. Moreover, she observed the poor and slow progress in the trend of the knowledge-related indicators in the Arab region.

Weber (2014) employed a case study methodology to investigate government educational policy and economic development in Qatar's strategy to diversify its oil and gas-based economy into knowledge production. He argued that although Qatar has undergone various knowledge economy initiatives, the country is, however, facing significant challenges in rapid population growth, reliance on expatriate labour for its skilled labour needs, an underdeveloped education system and an undiversified economy that revolves around hydrocarbon rents.

Bunglawala (2011) undertook an exploratory study to assess the state of the knowledge economy in Qatar. He found that Qatar has made some progress in the knowledge economy, but it has a lot to do in order to move into a knowledge-based economy. He also argued that the process of creating a successful knowledge economy is not an easy job. This is because it involves many difficulties in monitoring and implementation, as innovation becomes integrated in the web of global markets. Countries, especially small ones such as Qatar, must be attentive to the diversity of the international landscape of innovation, particularly the knowledge emerging from leading markets around the world.

As can be seen from previous review of the literature that entrepreneurship education and training is very important and many countries have realised its importance by integrating it in their education and training system. However, most of the studies pointed out some challenges that face the countries in introducing and implementing these programmes. Examples of these problems include shortages of qualified educators, inadequacy of resources and infrastructure and difficulties setting suitable and effective entrepreneurship curricula. Moreover, literature pointed out too many obstacles that face students who want to move and for teachers interested in establishing cross-disciplinary courses. A rigid curriculum structure is often an impediment to an inter-disciplinary approach.

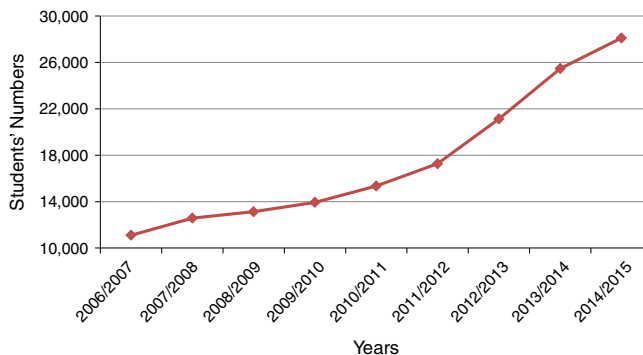
Entrepreneurship education and training and the knowledge economy in Qatar

General background

In order to diversify its economy and create a knowledge-based economy, Qatar has invested large resources in improving its education and services, to which it has allocated more than 4 per cent of its GDP. The rationale for this policy is that both education and training services focus on human beings and aim to invest in them, develop their capabilities and broaden their choices. It generates creative, innovative human beings and advanced nations and societies, as well as distinguished minds that produce the knowledge capital.

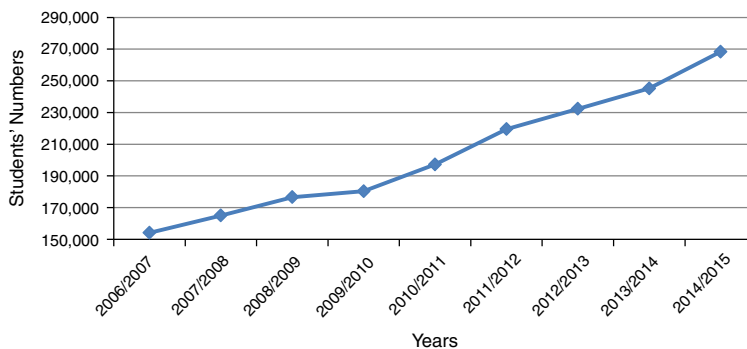
These resources have been used to improve the quantity and quality of education services at school and university levels. As a result, education and training in Qatar has rapidly expanded at all levels. Many education and training institutions have been established. Qatar Foundation and Education City, with its several campuses of major US universities, Qatar Science and Technology Park (QSTP) and Doha Institute for Higher Education are examples of higher education institutions that were established during this period. In addition, Qatar University, the main national university in the State of Qatar, has witnessed rapid expansion and great development. The student population has doubled, increasing from about 10,000 in 1995 to more than 20,000 in 2015.

Figures 1 and 2 show the progress in number of student populations at the university and school levels. As can be observed from Figure 1, the number of students at higher education institutions increased from about 15,000 in 2006 to nearly 30,000 in 2015. This increase in student population reflects government efforts to prepare its younger generations for the future. As can be observed from the figures, the number of students has steadily grown during the first five years (2006-2010), but grown more rapidly during the latter five years (2011-2015) of the specified period. The second period represents the years of execution of the National Development Strategy (2011-2016). The same rising trend in number of students can be observed from Figure 2. As depicted in Figure 2, the number of students in Qatari schools has rapidly increased from about 160 students in 2006 to about 270 students in 2015.



Source: Ministry of Development Planning and Statistics

Figure 1.
The number of
university students in
Qatar (2006-2015)



Source: Ministry of Development Planning and Statistics

Figure 2.
The number of school
students in Qatar
(2006-2015)

So far, we have highlighted the trend that shaped education in Qatar in general. The aim of this section is to shed some light on the progress that has been achieved during the study period in education in general. Against this background, in the next section we will discuss entrepreneurship education in Qatar.

Entrepreneurship education in Qatar

Although entrepreneurship education was introduced in the USA in 1970, EU countries in the 1980s and China and Malaysia in the 1990s, it was introduced in Qatar only very recently, after 2011. Before that, there had been some courses of an entrepreneurial nature that were taught as part of economic and business specialisation in Qatar University since the late 1970s. Examples of such courses include project management, project appraisal, feasibility study and business planning. There was neither a major nor a minor specialisation in entrepreneurship at either undergraduate or postgraduate level in Qatar University. Entrepreneurship education was introduced in Qatar University after the launching of the Qatar National Development Strategy (2011-2016) that identified entrepreneurship as an important tool to diversify the economy. Since then, the importance of entrepreneurship education has been recognised by many policy makers in Qatar. They have realised that efforts to develop the entrepreneurship sector are not going to be successful without the introduction of suitable entrepreneurship education and training programmes (Greene *et al.*, 2015).

As the oldest and main national university in Qatar, Qatar University has taken the lead and decided to incorporate entrepreneurship education in its education programmes. In taking this step Qatar University continued its commitment of developing human resources by creating a new generation of entrepreneurs who will contribute to government efforts to diversify its economy and create a knowledge economy. Against this background entrepreneurship education has been introduced as a minor specialisation for undergraduate students at the College of Business and Economics of Qatar University in the academic year 2012-2013. At the same time some courses (not specialisations) have been introduced for undergraduate students at the College of Engineering. Moreover, Qatar University has established the Center for Entrepreneurship (CFE) in order to spread the culture of entrepreneurship among students of Qatar University and the Qatar community at large. In order to fulfil its mandate, the CFE has launched many training programmes to students, faculties and staff of Qatar University. In addition, it has extended its services to the Qatar business community and institutions. In addition, and in collaboration with the College of Engineering, the CFE has organised many entrepreneurship and innovation contests for students to raise their awareness about entrepreneurship issues.

As a minor specialisation at Qatar University, entrepreneurship aims to help students develop core skills for enterprise, and provide opportunities for them to gain confidence and self-belief. The minor specialisation programme in entrepreneurship comprises four core courses and five elective courses. The core courses include entrepreneurship and small business, business planning for entrepreneurship, building and sustainable success entrepreneurship and finance for entrepreneurship ventures. The elective courses are cost and management accounting, personal finance, accounting information systems, human resource management and marketing research. These courses are delivered as academic courses using ordinary teaching methods such as lecturing, case studies, group discussions and role play. All these focus on achieving the specified programme objectives and the intended learning outcomes (Greene *et al.*, 2015).

From the outset, students realise the importance of entrepreneurship and start to choose it as a minor field of their study. As a result, the number of students enrolled in this programme has grown steadily. At the same time the number of students graduating from this programme is increasing but remains very small. Table II shows the development in the number of students and graduates for the period 2012-2014.

The assessment of this programme in term of students enroled and graduating is shown as a good performance since the number of students is increasing over time. In addition, assessing the programme in term of achieving its learning outcomes requires further investigation through personal interview with faculty, staff and graduates of the programme.

Entrepreneurship training

Entrepreneurship training was introduced in Qatar a little earlier than entrepreneurship education but later than many other countries of the region. Specifically, it was introduced in 2008 after the launching of QNV 2030 with the establishment of INJAZ Qatar. Since then, the state has paid some attention to training in entrepreneurship. The reason for this late recognition could be due to the fact that Qatar is not among the countries that suffer from high rates of unemployment and poverty, which are the main driver of the demand for entrepreneurship education and training. Another reason could be related to the good economic condition that characterised Qatar with its large endowment of oil and natural gas.

However, in recent years Qatar has set up various training institutions and launched many initiatives to foster entrepreneurship. These institutions were assigned with the role of providing entrepreneurship training programmes for potential entrepreneurs from different age, sex and income groups in the society. They target a range of participants that include school leavers, high school graduates, university graduates, businessmen and opportunistic potential entrepreneurs. The most important institution that has started to provide entrepreneurship training is the Qatar Development Bank (QDB). In addition to funding, entrepreneurs need business advices, support guidance and training to equip them with the necessary entrepreneurial skills and help them to start up their businesses. To date, the bank has offered the following services: business development services to help entrepreneurs develop their own feasibility studies conduct market research and selecting technology; and business counselling to both start-up and existing companies, providing entrepreneurs with tools for enhancing their soft skills and develop contacts with financial and non-financial support agencies.

In the investigation for the entrepreneurship training programmes provided by QDB, it is found that few had been organised and on an irregular basis during the last five years. These programmes covered how entrepreneurs can obtain funding for their projects, how to deal with financing options, and how to face the risks of financing. In addition, QDB has sometimes provided consultancy services in entrepreneurship issues from its own perspective. Moreover, it was observed that QDB provided some valuable support and guidance for potential entrepreneurs.

The second institution that was assigned the role of providing entrepreneurship training is the Bedaya Centre for Entrepreneurship and Career Development. This was established in 2011 as a partnership between the QDB and Silatech. The role assigned for this Centre is to provide activities that are specially designed to meet the needs of youths (aged 18-30) wishing to develop their skills and capabilities as entrepreneurs, or their employability and work-based skills. Since its establishment in 2011, it has provided many training programmes. For example, in 2014 the Bedaya Centre organised a series of training programmes attended by more than 4,000 trainees from different society groups. One of the

Academic years	2012	2013	2014	2015	2016
Number of enroled students	13	46	105	110	120
Number of graduated students	–	3	15	30	45

Source: Qatar University

Table II.
Number of students
minoring in
entrepreneurship
(2012-2016)

striking characteristics of these programmes is the diversity of topics covered by the series of workshops that were organised by this centre.

In addition to these two training institutions there are many other institutions that provide quality entrepreneurship training. An example of these institutions includes the Centre for Entrepreneurship of Qatar University, the Entrepreneurship Centre of North Atlantic College, INJAZ Qatar (a member of Junior Achievement Worldwide), the Roudha Centre for Entrepreneurship and Innovation and the QSTP. All these training institutions provide training courses that vary between one week and six months. For example, QSTP provides training courses extended up to six months, while INJAZ training programmes are delivered to students at schools and universities by professional trainers selected and trained by INJAZ. The outcomes of these programmes are measured by an increase in the number of trainees who express their intention to start up new businesses, the number of student companies started by the end of the academic year and the number of start-ups spun off (Greene *et al.*, 2015).

So far, an overview of entrepreneurship education and training has been presented. This overview can help in improve our understanding of the state of entrepreneurship education and training in Qatar. The impact of these education and training programmes on the knowledge economy is examined in the following section.

The state of the knowledge economy in Qatar

As previously stated, Qatar has made tremendous efforts in entrepreneurship education and training to enhance its entrepreneurship sector and its moving into a knowledge-based economy. In this section, the state of the knowledge economy will be reviewed; this is measured by what is known as the Knowledge Economy Index (KEI). This measurement has been developed by the World Bank. The KEI assesses whether the environment is conducive for knowledge to be used effectively for economic development. The World Bank’s knowledge economy framework is built on the proposition that the state of the knowledge economy in any country can be improved by sustained investment in education, innovation and ICTs (Nour, 2013; Bashir, 2013).

The KEI takes into account whether the environment is conducive for knowledge to be used effectively for economic development. It is an aggregate index that represents the overall level of development of a country or region towards the knowledge economy. The KEI is calculated based on the average of the normalised performance scores of a country or region on all four pillars related to the knowledge economy, economic incentive and institutional regime, education and human resources, the innovation system and ICT. The economic incentive and institutional regime pillar includes tariff and non-tariff barriers, regulatory quality and rule of law. The education and human resources pillar includes average years of schooling, secondary enrolment and tertiary enrolment (Nour, 2013)

The data in Table III reflect the ranking of GCC countries in terms of KEI against the remaining 131 countries of the world, using the World Bank’s Knowledge Assessment

Country	Rank (2000)	KEI (2000)	Rank (2008)	KEI (2008)	Change (2000-2008)	Rank (2012)	KEI (2012)	Change (2008-2012)
UAE	48	6.05	42	6.66	0.65	42	6.94	0.28
Bahrain	41	6.85	50	6.02	-0.83	43	6.90	0.88
Oman	65	5.28	62	5.37	0.09	47	6.14	0.77
Saudi Arabia	76	4.60	65	5.15	0.55	50	5.96	0.81
Qatar	49	6.09	45	6.15	0.06	54	5.84	-0.31
Kuwait	46	6.16	51	6.01	-0.15	64	5.33	-0.68

Table III.
Knowledge Economy
Index (KEI) for GCC
countries (2000-2012)

Source: World Bank (www.worldbank.org/kam)

Methodology (KAM). As can be seen from the table, although the GCC countries are considered among the richest countries of the world in terms of GDP per capita, their ranking does not reflect their income level. The best ranking of the GCC countries was attained by Kingdom of Bahrain in 2000 but it failed to maintain this ranking in the 2008 and 2012 ranking. Qatar is considered as the second richest country in the world in term of GDP per capita, yet its ranking in terms of KEI is relatively low. Qatar KEI was 6.06, 6.15 and 5.84 in 2000, 2008 and 2012, respectively. These KEI records ranked Qatar 49 in 2000 and 45 in 2008. However, Qatar dropped nine ranks in 2012 which was lower than its rank 12 years ago.

Qatar spends about 4 per cent of its GDP on education and 1.5 per cent of GDP on research, introduces entrepreneurship education and training to boost the national innovation system, and invests huge resources in ICT. Unfortunately, these efforts have met with limited success and Qatar ranking in KEI remains relatively low when compared with other countries of the world. Like many other GCC countries, Qatar's KEI ranking has continued to fluctuate. The ranking of Qatar in this field seems surprising and odd when compared to its performance in other fields. Qatar leads the Middle East and North Africa region in most of the macroeconomic and human development indicators. In 2016, Qatar ranked at 14th position in the global competitiveness index. The country's main strength is its stable macroeconomic environment, which is driven by public budget surpluses and low government debt. Moreover, in 2016, Qatar ranked 1st among the Middle East and North Africa in term of human development indicators.

To clarify the picture about the state of knowledge economy in Qatar and get better understanding for it, another set of data is adopted from Arab Knowledge Index (AKI) report which was published in 2015. This report has been produced through a partnership between Mohammed Bin Rashid Al Maktoum Foundation and the Regional Bureau for Arab State of the United Nations Development Programme. The AKI was developed based on six essential components employed in defining the knowledge base of a given country. These components are: pre-university education; technical vocational education and training (TVET); higher education; the economy; ICT; and R&D and innovation, which all interact with each other.

The data in Table IV depict the state of Knowledge in GCC countries. The maximum value for index is 100 which implies excellent performance. Qatar ranked 2nd after UAE in economy index, information communication technology and TVET index. However, in absolute term the value of Qatar economy index is relatively high which stand at 75.6 out of the maximum value of 100. This has attained some progress towards a knowledge-based economy. Having maintained the same progress in future, it will be able to establish a developed knowledge-based economy. In Figure 3, the breakdown of economy index is presented.

Country	Pre-university education index	Technical vocational education and training index	Higher education index	Information communications technology	Economy index	Research and development and innovation
UAE	68.6	60.8	72.6	77.5	77.6	50.1
Bahrain	66.6	51.5	28.7	69.1	62.1	36.3
Oman	57.4	49.0	49.7	55.1	56.3	39.0
Saudi Arabia	67.4	56.0	62.4	69.6	64.6	56.8
Qatar	66.2	59.3	59.4	76.2	75.6	40.5
Kuwait	63.0	55.3	49.4	56.2	42.8	36.6

Sources: United Nations Development Programme (UNDP) and Mohammed Bin Rashid Al Maktoum Foundation (2015)

Table IV.
Arab Knowledge
Index (AKI) for GCC
countries (2015)

Figure 3.
Sub-indices of
economy index
in Qatar 2015



Sources: Adopted from the AKI of the United Nations Development Programme (UNDP) and Mohammed Bin Rashid Al Maktoum Foundation (2015, p. 155) report

As can be observed from Figure 3, Qatar performed excellent in institutional organisation of the economy by scoring 99.67 and fairly good in enabling environment of the economy with 85.61 scoring. The performances in the rest of the sub-indices are relatively good except technology knowledge exchange in the economy. This means that investment in education in general, and entrepreneurship education and training in particular, has been associated with some progress in knowledge economy indices. It can hardly be accepted that all these progress in knowledge economy is attributed to investment in education as general and entrepreneurship education and training as specific. Along this line of thinking we can argue that national innovation system and human development for knowledge economy cannot work without consideration of the other components of KAM. The creation of a facilitative business environment, an information and communications infrastructure and an innovation system can only augment the benefits of human capital development and new knowledge creation.

Conclusions

The objectives of this paper were to investigate the nature and type of entrepreneurship education and training in Qatar. This investigation was undertaken in connection to the knowledge economy, with objective to explore the impact of entrepreneurship education and training on the creation of knowledge economy. Despite Qatari Government recognition with the importance of entrepreneurship education and training and its desire to promote and develop them, it is quite evident from this study that current state of educational education remains limited. The state of entrepreneurship education and training remains far below the efforts exerted by the government to enhance it. The paper highlighted many initiatives that have been launched to introduce and develop entrepreneurship education in Qatar. Nevertheless, there was no tangible improvement in Qatar's ranking in KEI during the early years of its introduction. However, the paper revealed that, Qatar's performance in AKI has slightly improved. Part of this improvement in Qatar's score could be attributed to investment in education as general and introduction of entrepreneurship education and training as specific. Though, no clear evidence that be used to emphasise the relationship between entrepreneurship education and training and improvement in Qatar's AKI. The study shows that further research needs to be undertaken on the role of entrepreneurship education and training on building knowledge economy.

The main policy implication that can be derived from the findings of this paper is that entrepreneurship education and training alone cannot create a diversified and knowledge-based economy in a short period of time. In fact building a knowledge economy requires more than introduction of entrepreneurship education and training. In addition to entrepreneurship education it requires improvement in national innovation system, large investment in ICT and a

good macroeconomic performance. Moreover, the success of entrepreneurship education and training in fulfilling its objective requires a comprehensive strategy to be implemented over a long period of time.

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