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## The role of education in knowledge economies in developing countries

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### Abstract

Education and universities, along with biotechnology, intellectual property and ICT development, are often mentioned without in-depth critical analysis in discussions of modern knowledge economies. In the face of global marketplaces and the fluidity of intellectual capital, the idea of the role of primary, secondary and tertiary education will necessarily be refashioned in developing nations. Western concepts such as liberal studies and the idea of education as the preparation for good citizenship, self-discovery, and self-fulfillment are being re-examined in light of national education priorities. Drawing on the author's experience with a knowledge economy educational project in the Arabian Gulf–Qatar Foundation's Education City—this contribution speculates on the current and future role of education within the context of the knowledge economies of MENA and the Arabian Gulf. Education in the Arabian Gulf (GCC states) has been developing since the early 1990s to fulfill several very specific roles: ending illiteracy, diversification of hydrocarbon-based economies, and preservation of cultural integrity.

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### 1. Definition of the Knowledge Economy

The term 'knowledge economy' was possibly coined by Peter Drucker, an Austrian writer on management, economics, and organizational theory, in his 1969 book *The Age of Discontinuity* (263). He is also credited with inventing the term "knowledge worker" in discussions of information management in the late 1950s, and modern analyses of knowledge economies not only grow out of the work of seminal theorists such as Vannevar Bush, Marshall McLuhan, Alvin Toffler, etc., in the fields of philosophy, economics, futurism, epistemology, communications, and information theory, but modern knowledge economy discussions may also in some sense represent a re-packaging of some of the fundamental ideas of these writers. The usefulness of the concept of knowledge as an economic term has been called into question since all economies historically have to some extent relied on knowledge ("know-how") either to produce saleable goods and services or to facilitate their management and exchange. Some thinkers believe that the Knowledge Economy is the next stage of global economic development after an agricultural age (based on land) followed by an industrial age (based on capital and labor), while others dismiss the term as jargon and buzzwords which attempt to relate in a meaningful way several ongoing trends such as globalization and technological advancement. Marxist critiques of knowledge economies tend to view

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knowledge economy rhetoric as a discourse of global capital pursuing its ends of maximization of profit, and designed to fulfill a void in economic outlook after the dot.com crash of the late 1990s. Thus a fundamental question to be asked is do the claims of knowledge economies represent real, recognizable and inter-related forces at work in the modern world?

The fact that virtually all international development, research and governance bodies, however, cite knowledge as a central capacity builder for nations indicates that the knowledge economy—specifically, ITC, education, and innovation—should be taken seriously in national planning strategies. As Aubert and Reiffers point out in the 2003 World Bank report entitled *Knowledge Economies in the Middle East and North Africa*: “Countries that fail to become part of this [information] revolution risk becoming even more marginalized than those left aside in the earlier industrial revolution” (Aubert, 2003, p. xii). Since the World Bank is one of the main drivers of knowledge economy initiatives in the world, through education, resource sharing, and its online Knowledge Assessment Methodology tools, providing the means of calculating a country’s Knowledge Economy Index (KEI) and Knowledge Index (KI), its definition of knowledge economy is the most comprehensive and widely-used. The definition encompasses four pillars, summarized below in Figure 1 (World Bank, 2010) that nations must consider in assessing their strengths and weaknesses. “Education and Skills” in the World Bank schema not only represents its own separate pillar (2), but also plays a critical role in pillar number 4—“Innovation system”—since educational institutions and technology incubators connected to universities are often the sources of new technologies, patents, and novel ideas.

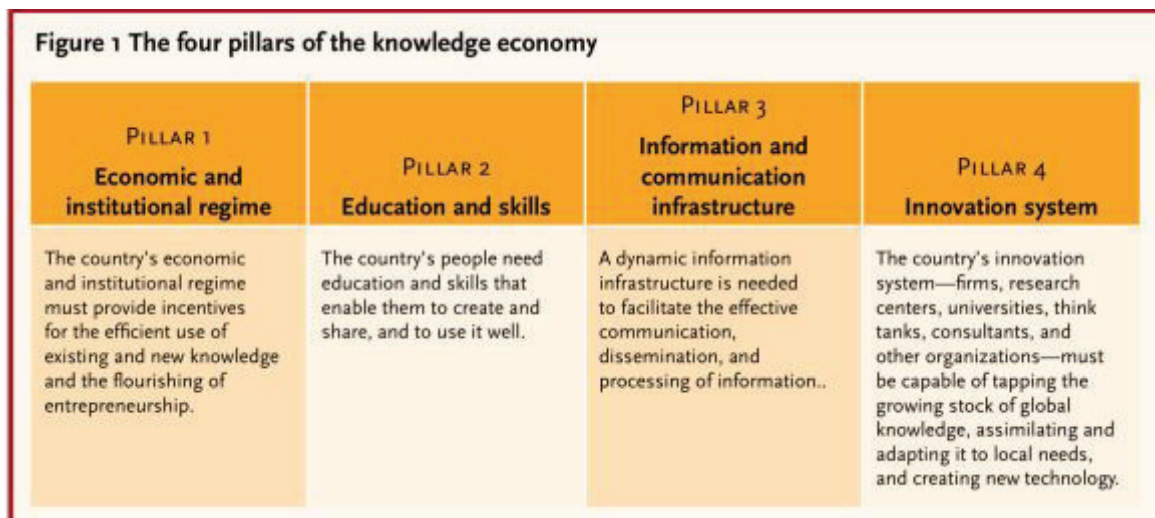


Figure 1. World Bank Knowledge Economy Assessment (KEA) framework.

When applying this framework to the developing nations in the MENA region, Aubert’s 2003 World Bank report discovered that they were not investing in key areas that are fundamental to knowledge economies: “To date, related investments in education, information infrastructure, research and development (R&D), and innovation have been insufficient or inappropriate in most MENA countries. Moreover, inadequate economic and institutional frameworks prevent these investments from yielding desired results” (Aubert, 2003, p. 1).

## 2. MENA Countries and the Educated Workforce

Peters argues that the importance of education in the knowledge economy emerged as a key theme in the late 1990s in OECD and World Bank reports: “In terms of these reports, education is reconfigured as a massively

undervalued form of knowledge capital that will determine the future of work, the organization of knowledge institutions and the shape of society in the years to come” (Peters, in Hearn, 2008, p. 27). Human capital has been cited consistently in international reports as a fundamental aspect of development, and more specifically a trained workforce, one that is adaptable to lifelong learning and retraining, and one that has been educated to use critical / analytical thinking skills to solve complex problems that arise in rapidly shifting knowledge marketplaces. As Lundvall has written: “Human capital plays a decisive role, and the capacity to learn matters more than the level of knowledge. While secondary school certificates were the trump cards of industrialization, higher degrees are those of the knowledge economy. Lifelong training is essential” (Lundvall, 1998).

Most importantly, Aubert has underscored the observation that Arabic-speaking nations have not met their own goals for education, which hampers innovation both directly and indirectly through failure to produce knowledge workers who in turn generate new income-producing knowledge products, such as software, creative products (media, books, film, etc.), processes, and patents: “The other main weakness of the innovation system is the content of the education system. “Despite improvements in the gross enrollment ratio, the education system has been unable to overcome illiteracy and to train enough engineers and scientists” (Aubert, 2003, p. 37). International educators have been aware for years, for example, that Egypt is training young men and women in large numbers for jobs that do not exist. And even when educational systems are successful in training knowledge workers, the threat of brain drain looms continually in all Arabic-speaking countries. The Arab Human Development Report for 2002 estimates that at the end of the 20<sup>th</sup> century, there were over 1 million highly qualified Arab expatriates working in the OECD countries (AHDR 2002, p. 71).

### **3. Eradicating Illiteracy**

Literacy is an obvious feature of the knowledge economy, not necessarily critical to other forms of economic organization, such as agricultural-based societies: it is hard to imagine how citizens could participate in or contribute to a knowledge economy without not only basic reading and writing skills, but also some measure of computer literacy, including use of the internet. Although Gulf societies have developed an elaborate and still intact non-written business and intellectual culture (based on the *majlis* gathering, oral contracts and family connections, strong interpersonal networks and information sharing networks arising from 100% or greater mobile phone penetration rates in countries like Qatar and UAE), the sheer volume of information now available to corporations and small businesses in the Middle East is forcing oral cultures to place greater emphasis on the written word. To provide one brief example representing the cultural specificity of written versus oral cultures, Weill Cornell Medical College in Qatar has recently embarked on a biomedical research program requiring the signing of patient consent forms. Some older and traditional patients view the written forms with distrust – if the researcher has given his word verbally not to harm the patient, then why do they need to sign a paper?

The wealthier Gulf nations have achieved high adult literacy rates through emphasis on primary education with Kuwait at 94.5% and Qatar at 93.1% adult literacy over 15 years of age. Illiteracy among the very old in some countries, however, is quite high; for example in Qatar where public education was only first introduced in the 1950s. In contrast, literacy in other MENA countries can be as low as 66.4% in Egypt and 58.9% in Yemen, with female illiteracy accounting for large percentages of the total (UNDP HDR 2009, pp. 171-73). Thus while illiteracy is currently uncommon in OECD nations, the MENA region still faces challenges in this area.

### **4. Education in the Gulf States: Diversifying Economies**

Oil and gas revenues account for about 50% of GDP and 95% of exports in Kuwait, and 50% of GDP and 85% of exports in Qatar (CIA Factbook, 2010). Yemen’s oil reserves account for approximately 70% of government revenue and are expected to be exhausted by 2020. Bahrain’s small reserves of oil may be gone in 15 years. Most of the Gulf states are heavily reliant on hydrocarbon revenues and in some states hydrocarbon reserves are rapidly declining. After years of OPEC denials that the world was running out of oil based on the predictions of the peak oil

hypothesis of Marion Hubbert (Deffeyes, 2002), King Abdullah of Saudi Arabia made the surprising statement in 1998 that the oil boom was over, and that Saudis would have to adjust to a new life without generous government handouts (Schindler, 2008, p. 45). A growing consensus of geologists, oil industry consultants, scientists, and now increasingly oil executives and oil industry insiders, believes that world oil production has peaked or will soon peak, and will begin declining in the coming decades.

Bahrain has already confronted the issue of dwindling oil assets and has diversified its economy into investment, finance, tourism, and manufacturing. The small island nation has become the hub of Islamic banking in the region. Other Gulf economies are following suit: economic diversification has become a pressing necessity, and the knowledge economy road map laid out by international development agencies, whether or not it fits the economic and cultural realities of specific Gulf nations, presents a ready-made template for change. A prominent issue in diversifying economies involves training the appropriate workers with the needed skill set. Despite the large strides that Gulf nations have made in developing systems of higher education, the relationship between labor market needs and higher education graduates is still a very serious issue. Countries such as Kuwait, Saudi Arabia, Qatar, and UAE are described by political scientists and economists as ‘rentier states’, as they derive the bulk of their GDP primarily from rents. These states are highly socialistic, with payments to citizens as direct stipends, or through subsidized healthcare, education, water and electricity. Education in these countries falls into the danger of being regarded as a perk, since bachelor’s degrees for nationals in any field can lead to employment in the government sector at highly attractive wages. Employment figures from Qatar reflect this situation clearly: among employed Qataris in 2003, 86.5% were in the government sector and only 4.65% in the private sector (*Peninsula*, 2003). Another challenge is that approximately 75% of higher education degrees in rentier states are in the fields of Arabic and English literature, humanities and the social sciences. Thus a severe shortage of engineers, ITC workers, scientists, and researchers exists in these countries, and they generally look abroad for this kind of expertise.

The question of innovation and critical thinking arises when examining past educational systems in the Gulf, and what changes would be needed to transform these systems into institutions for training problem-solving workers who use and maintain knowledge productively. Dominic Brewer and the RAND Corporation were invited to Qatar to undertake an analysis of Qatari education and to suggest a roadmap for reform. Their research resulted in a series of reports and policy papers known collectively as *Education for a New Era*.

Brewer describes what he and the RAND team discovered in Qatari schools in their initial discussions and site visits: “Decision-making was highly centralized: top-down control applied to curriculum, resources, and all aspects of the system. Consequently, the MoE [Ministry of Education] provided all textbooks and a curriculum guide, which was used daily to record minute detail of each lesson taught. MoE inspectors reviewed this record to ensure compliance with the national curriculum. The curriculum itself was incrementally updated on a rigid schedule, with each subject reviewed and revised at one grade level each year. Teachers who chose to alter the curriculum (e.g. provide different examples or expertise) had to spend their own money on any additional materials, and still teach the lesson plan for that particular day. Creativity was implicitly discouraged. Students were generally unchallenged, with few opportunities for teacher-student interaction and an emphasis on rote learning and memorization. School administrators had little authority” (Brewer, 2010, p. 230). The inflexibility of this system is obvious and the lack of opportunities for students to demonstrate and foster creativity, which stands at the heart of knowledge production. This critique could apply to many other schools in the Gulf region.

Also, the word and concept of *bid’ah* or innovation – that which is new or has been introduced – has a profoundly different cultural and linguistic meaning in English and Arabic. A religious innovation that departs from the original revelation of Islam is viewed as heretical in Sunni Islam. Also, the main schools of *fiqh* (law) had decided the major legal questions of Shari’ah law by the 9th to 10th centuries, and subsequent legislators were expected to respect and imitate this framework. Although innovation in science and technology is encouraged in Islam, for many the word carries a connotation of overthrowing or contradicting established tradition, i.e. working against Islam.

## 5. Education in the Gulf States: Cultural Preservation

Several countries in the Gulf maintain nationalization (Saudization, Qatarization, Emiratization) programs designed to reduce expatriate workforces and foster native talent. In Qatar, Bahrain, Kuwait and UAE, expatriate workers substantially outnumber the local citizen population, with only 15% of the total UAE population holding citizenship, for example. Fears of cultural disintegration in the face of majority populations from India, Pakistan, Nepal, the Philippines, etc. and increasingly U.S.A. and Europe for highly skilled knowledge workers, are widespread and surface in the national media on occasion as complaints against foreign nannies who instruct children in languages other than Arabic, or construction workers who go on work stoppages and slow downs (often because their employer has neglected to pay them), threatening national prosperity.

Another, more subtle, threat to national culture may lie in the very educational reforms that are designed to train local knowledge workers, and retain them in the country of origin in a productive capacity. For example, the general and Arabic language standards created by RAND corporation for the Qatari K-12 system not only reduce the time spent on the study of religion, a traditional pillar of Islamic education, but also reduce Arabic to a practical language, rather than presenting it as a richly rewarding historical and cultural experience (Arabic poetry and the *Qur'an*, for example). Bushshur notes that: “The distribution pattern of hours per subject tells an important story of a shift in the independent schools away from Arabic and religion towards English, science, math, and arts/technical (computer) subjects” (Bushshur, 2010, p. 257).

Religious conservatives are not only alarmed by the favoring of technical topics over religion, but also the increasing use of English as the language of instruction in Gulf educational institutions since they rightly argue that all languages carry deeply embedded cultural messages within them.

## 6. Conclusion

Despite claims of cultural sensitivity and inclusiveness, some of the knowledge economy frameworks at times appear prescriptive, with a one-size-fits-all sensibility. As Peters has noted: “Knowledge production and dissemination requires the exchange of ideas and such exchanges, in turn, depend upon certain cultural conditions, including trust, reciprocal rights and responsibilities between different knowledge partners, institutional regimes and strategies, and the whole sociological baggage that comes with understanding institutions...there is not one prescription or formula that fits all institutions, societies or knowledge traditions” (Peters, 2008, p. 38). The cases of Qatar, Saudi Arabia, and UAE, all demonstrate that these countries are adapting the knowledge economy formulas to suit specific developmental, educational, economic and socio-cultural needs facing their respective societies.

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