

# Growth and Development of Technical Education in UAE

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## **Abstract**

The United Arab Emirates (UAE) is home to a wide range of universities, both public and private. The UAE has established an excellent and diversified system of higher education in a very short period. Educational opportunities in the UAE have blossomed since the establishment of the Federation when only a tiny minority of the urban population had access to formal education. Today, the UAE offers a comprehensive education to all male and female students from kindergarten to university, with education for the country's citizens being provided free at all levels. There is also an extensive private education sector, while several thousand students, of both sexes, pursue courses of higher education abroad.

In this paper, authors have analyzed the growth, development and progress of higher education in the country. Also, narrated the chronological growth of technical education offering Engineering and Management programs in the country. Authors described the quality standards initiated by Federal Government monitored by the Quality Assurance Agency charged with promoting educational excellence across diverse institutions of higher learning in the UAE.

### **Keywords**

Higher Education, Technical Education, Quality standards, UAE

## **Introduction**

United Arab Emirates (UAE) was formed from the group of tribally organized Arabian Peninsula sheikhdoms along the southern coast of the Persia and the northwestern coast of the Gulf of Oman. These sheikhdoms were embroiled in dynastic disputes from 17th to the 19th century (Heard-Bey, 1999, pp.261-263). According to CIA (UAE. Central Intelligence Agency, 2012) World Fact book retrieved in December 2012, the UK announced its decision in 1968 to end the treaty relationship with the seven Trucial Sheikhdoms, which had been together with Bahrain and Qatar, under British rulers. The nine attempted to form a union of Arab emirates, but by mid-1971 they were unable to agree on terms of union. Bahrain became independent in August and Qatar in September, 1971. When the British-Trucial Sheikhdoms treaty expired on December 1, 1971, they became fully independent. On December 2, 1971, seven emirates entered into a union called the United Arab Emirates. The constituent emirates are Abu Dhabi, Ajman, Dubai, Fujairah, Ras al-Khaimah, Sharjah, and Umm al-Quwain. The capital is Abu Dhabi, which is also the state's center of political, industrial, and cultural activities (<http://globaledge.msu.edu/countries/united-arab-emirates/history>).

## **Growth and Development of Education**

Before the discovery of oil, there was very little development in the Arabian Peninsula, and certainly no proper educational system. In 1962, when oil production started in Abu Dhabi, the country had just 20 schools for less than 4,000 students, most of them were boys. The country lacked the necessary infrastructure for the development (hospitals, proper housing, airports, etc.) as well as qualified people. The discovery of oil provided the necessary finance to improve the education system. This was a high priority for His Highness Sheikh Zayed bin Sultan Al Nahyan, the UAE President, who declared: "Youth is the real wealth of the nation." His aim was to use the oil revenue to develop academically and technically qualified citizens - men and women - able to serve the country in its progress. When the UAE was established in 1971, education was still largely confined to urban areas, and there were less than 28,000 students in the country. Any student who opted for higher education was financed by the government and had to go abroad, sometimes to other Arab countries, but mainly to England and the United

States (UAE Yearbook, 2001; Wilson, 1999, pp.41-53, pp.215-217; and Heard-Bey, 1999, pp.263-265).

The UAE educational system was established at the beginning of the 1970s, and comprises four stages spanning 14 years of education: 4-5 year old attend kindergarten, 6-11 year old attend primary schools, the preparatory stage caters for children aged between 12-14 years, and 15-17 year old attend secondary schools. The UAE provides a comprehensive education system to boys and girls, for free education to the nationals in governmental schools, colleges and universities. The private education sector is constantly being improved and caters for nearly 40% of the student population. Some of these schools offer foreign language education for various expatriate communities and follow the curriculum of the concerned countries.

The Ministry of Education and Youth has established a strategy, to be implemented over the next 20 years, to further develop the education system. Their major concern is to ensure the development of methods and programs that adhere to the latest international standards, with particular focus on latest IT resources at all levels. The emiratization of teaching staff is scheduled to reach 90% by 2020, in order to ensure that the Islamic principles and traditions of the UAE are preserved. A Planning, Development and Evaluation Office have been created by the Ministry to oversee the strategy's implementation. Today, every village in the UAE has its own primary school, at the very least and a number of secondary schools in the cities offer boarding facilities to ensure that a greater percentage of the population have access to education.

Sheikh Mohammed's goal is to produce UAE's youth who are capable of serving the country's needs and of inspiring future generations. As well as establishing computer labs in all participating schools, and creating a comprehensive cutting-edge curriculum, the IT Education Project also provides an invaluable online educational resource at [www.itep.ae](http://www.itep.ae). The UAE government has placed particular emphasis on the promotion of youth activities, through social, scientific, arts and cultural clubs. Scouts and Guides societies have been established across the country and they organize cultural, religious, social, scientific and educational programs for their members.

The Special Education department under the Ministry of Education was introduced to cater for children with special educational needs. One of the most successful ventures has been a self-financing farm run by physically and mentally challenged people, called the Zayed Agricultural Centre for the Disabled, which has garnered international praise and recognition. From the earliest stages of its development, the government of the UAE realized the importance of the country's youth to its progress. The government is constantly striving to develop and improve methods and infrastructure in order to take advantage of the economic growth potential that a qualified workforce represents (Sheikh Mohammed, 2013).

In his influential article (Schultz, 1961), author stressed the role of education in development. He expressed that higher education could be considered as a process of accumulating capital, which could increase a worker's productivity and income. He referred to this financial commitment in education as an investment in '*human capital*'.

## **Progress of Higher Education in UAE**

The UAE has a superior and diversified tertiary education system comprising several established public universities. The UAE's higher education sector has been characterized by rapid growth over the decades since UAE University (UAEU), the country's first institution, was established by the late Shaikh Zayed Bin Sultan Al Nahyan in 1976. Consisting of nine colleges, UAE University was considered by the UAE government to be the leading teaching and research institution in the country (UAEinteract, 2012).

From limited university options with a handful of students admitted, the UAE is now a higher education hub with 3 federal universities and more than 70 ministry-accredited institutions in the country. The UAE has provided federal university education free of charge to the citizens.

After the UAEU was established, the more technically oriented Higher Colleges of Technology was established in 1988 and is the largest higher education institution in the country. The Higher Colleges of Technology (HCT) has campuses in Abu Dhabi, Dubai, Al Ain, Sharjah, Ras Al Khaimah and Fujairah and offer Business Administration, Accounting, Chemical Engineering and much more. The commercial arm of the HCT, the Centre of Excellence for Applied Research and Training allied with multinational companies are to provide training courses and professional development.

In 1998, the federal government established Zayed University primarily to educate Emirati women with campuses in Dubai and Abu Dhabi. Today, the university is educating more than 6,000 male and female students from 19 countries to compete in a global environment at various campuses. The private sector addresses the needs of the large expatriate population in the UAE, enrolling primarily South Asians and other Arab nationals.

The country also has a well-developed private higher education system including many institutions with international accreditation. Some of the universities in the UAE include the American University in Dubai (1995), American University of Sharjah (1997), University of Sharjah (1997), Ajman University of Science and Technology (1988), Al Ain University of Science and Technology (2004) and Masdar Institute for Science and Technology (2009). Students from other GCC (Gulf Cooperation Council) countries as well as the MENA (Middle East and North Africa) region increasingly attend the private universities in UAE due to quality education compared to other Arab countries. While some universities have standalone campuses, others operate within education free zones or education clusters such as University City in Sharjah that is home to University of Sharjah (1997), American University of Sharjah (1997), HCT colleges (1988), Skyline University College (1990) and the Dr Sultan Al Qasimi Centre of Gulf Studies (2007), among others.

Apart from public and private universities, there are number of international universities like the Manipal University Dubai Campus (2000), BITS Pilani, Dubai Campus (2000), London Business School (2006), and New York Page University (2009) which operates campuses in the UAE. These universities are accommodated mostly in special zones like the Dubai Knowledge

Village and the Academic City. The UAE government has collaborated with several foreign institutions, particularly from the US, with an aim to provide better-quality higher education. Some of the foreign universities that have collaborated with the UAE-based universities include The Massachusetts Institute of Technology, The Wharton School, and The Rochester Institute of Technology.

In recent years, the UAE, in pursuit of diversifying its economy and enhancing the skill level of nationals, is focusing hard on development of a technical and vocational education system. These include the Emirates Institute for Banking & Finance and the Abu Dhabi National Oil Company Career Development Centre. In 1999, Sheikh Nahyan bin Mubarak Al Nahyan, Minister of Higher Education and Scientific Research, inaugurated the Centre of Excellence for Applied Research and Training (CERT), providing a unique education program for all nationalities. The government has established several technical and vocational institutes such as the Abu Dhabi Centre for Technical & Vocational Education and Training, National Institute of Vocational Education in Dubai, Abu Dhabi Vocational Education & Training Institute, and the National Qualification Authority. Demand for vocational training across the UAE has been growing recently, particularly for courses in key industries like aviation, hospitality, fashion, nursing, teaching, creative arts, and public service. Several private companies have also come forward to impart technical training to students across the UAE.

In 2003, Dubai established a dedicated education zone, Knowledge Village, based at Dubai Internet City, to bring together globally recognized international universities, training centers, e-learning, and research and development companies in one place. As of early 2007, it had attracted 16 international university partners. The popularity of free zones and growing demand encouraged the Dubai Government to establish Dubai International Academic City (DIAC) in 2007.

The study (Hizaji, Zoubeidi, Abdalla, & Harb, 2008, p. 69) provided an overview of the state of the higher education system in the UAE. According to them, Higher education institutions in UAE are relatively young. The UAE has established an excellent and diversified system of higher education in a very short period.

The first such institution, UAE University, was established in 1977 with an enrollment of 400 students, continues to be the country's flagship national institution of higher education and is committed to its role as the leading teaching and research institution in the UAE. UAEU offers over 70 (undergraduate) bachelor degrees and a number of graduate programmes in a wide range of disciplines. International accreditation has been awarded to the professional academic programmes and the non-professional programmes which undergo periodic external evaluation by international experts to ensure that they meet international standards. Collaboration with international institutions also opens up new opportunities for UAEU's students. Since then, considerable public and private investments have led to a tremendous expansion of the higher education sector, which now includes a wide range of programs offered by a large number of public and private institutions.

Technical colleges generally offer vocational training programs or two years associate degrees. Universities typically offer full undergraduate courses of study leading to bachelor degrees as

well as postgraduate programs leading to first professional and master degrees. The classification “public” institution refers solely to higher education institutions affiliated to the UAE Ministry of Higher Education and Scientific Research (MHESR), which offer tuition-free education to UAE nationals and to a limited number of expatriates. These institutions are UAE University, Zayed University and the Higher Colleges of Technology. All other institutions are referred as “private” institutions.

A positive relationship between higher education and economic growth is well established (Economic Intelligence United, 2005; Human Development Indicators, 2005; & United Arab Emirates Yearbook, 1995, 2000 and 2005). Higher education and training are viewed as major determinants of increasing productivity, and as a factor diffusing growth. Higher education is considered a key element in developing the necessary skill levels for growth and modernization in the UAE. Higher educational institutions in the UAE consist of public and private sector, military schools and vocational training centers.

It is briefed in the website (UAE. UAEInteract, 2012) about the Professional education in UAE. It has also been emphasized on technical and management education which have gained importance in UAE and private organizations which participate in large number to establish institutions of higher learning. The utilization of information resources needs to be closely allied with appropriate Library Networking and Resource Sharing through consortium. This incorporates the cultural perspectives, language needs and the diverse programs which are being offered in different educational institutions and requirement of likely users/participants in the newly emerging tertiary education sector in the UAE.

Institutions of Higher learning like Universities and Scientific & Research organizations promote research as their preferred agenda as it contributes to the prosperity of the nation. Indian universities and other institutions from different parts of the world play major role in creation and dissemination of knowledge by providing opportunities for research scholars to conduct doctoral research studies in specialized subject areas.

In view of academic advancement, the UAE government is continuously investing in developing infrastructure including information technology for education. The Ministry of Education has prepared a policy, which shows the strategy for further educational development in UAE. Number of colleges and universities in UAE has grown significantly in last 20 years and every year the number of staff and students increase by about 30%. Most of the colleges and universities affiliate themselves to prestigious institutions abroad, and in order to attract students, they use English as their medium of instruction.

The higher education sector in the UAE has witnessed drastic changes since 1997. An increasing number of private and publicly owned colleges and universities have established all over UAE and particularly in Dubai.

### **Status of Technical Education**

According to the Alpen Capital research report (GCC Education Industry, 2014, p.17), the technical education institutions in UAE offer higher national diplomas, certificates, undergraduate and postgraduate studies. While some of these are awarded by local institutions,

others are branch campuses of institutions from countries such as Canada, US, UK, Australia, India, Pakistan, France and other European countries. The duration of courses vary depending on the parent institution. The UAE now has 70 recognized institutions which offer 418 accredited programmes.

The authors identified the following 25 institutions from website (UAE University list, 2012) that are offering technical education (Engineering and Management) at UG level and above in UAE. The below Table indicates the chronological development of technical education in UAE.

Table 1. Chronological development of technical education

SN	Institutions	Year of establishment
1	United Arab Emirates University Emirates, Al Ain	1980
2	Islamic Azad University, Dubai	1982
3	Ajman University of Science and Technology, Ajman	1988
4	Higher Colleges of Technology, UAE	1989
5	Khalifa University of Science, Technology and Research, Sharjah	1989
6	Emirates Aviation College Aerospace and Academic Studies, Dubai	1991
7	University of Wollongong, Dubai	1993
8	American University in Dubai, Dubai	1995
9	American University of Sharjah, Sharjah	1997
10	University of Sharjah, Sharjah	1997
11	Emirates College for Management and Information Technology, Dubai	1998
12	Al Ghurair University, Dubai	1999
13	Ittihad University, Ras Al Khaimah	1999
14	BITS Pilani, Dubai Campus, Dubai	2000
15	Heriot-Watt University, Dubai	2000
16	Manipal University, Dubai	2000
17	Petroleum Institute, Abu Dhabi	2001
18	Abu Dhabi University, Abu Dhabi	2003
19	Al Ain University of Science and Technology, Al Ain	2004
20	British University in Dubai, Dubai	2004
21	Masdar Institute of Science and Technology, Abu Dhabi	2004
22	Al Hosn University, Abu Dhabi	2005
23	New York Institute of Technology, Abu Dhabi	2005
24	Dubai Aerospace Enterprise University, Dubai	2006
25	Amity University, Dubai	2010

Technical education institution is defined as an institution of education that has a physical presence and has a dedicated full-time faculty to teach its programmes, or faculty from the home institution are flown to teach students. Quality technical education in UAE that includes relevant skills essential to drive economic growth and development will equip young people

with choices that will shape the future of UAE. UAE is increasingly committed to expanding and transforming the technical education landscape. The Ministry of Higher Education has adopted several policies in order to achieve the highest goals in technical education that take the country forward. The Knowledge & Human Development Authority (KHDA), part of Ministry of Higher education, Government of UAE authority established in 2006, is tasked with ensuring that UAE has the human resources to meet its economic and social needs. Its role is to:

- Develop strategic plans, policies, laws and regulations to improve learning and human development;
- Set UAE's education standards in collaboration with federal ministries;
- Oversee and facilitate the implementation of learning and human development policies;
- Ensure graduates have the expertise required to meet UAE's workforce needs.

The Ministry of Higher Education is constantly whetting to bring its education system to international standards. It has a particular focus in introducing the new IT resources at all levels. As a result of this, Sheikh Mohammed Bin Rashid IT Education Project was launched in the year 2000. Today the trainee students achieve 97% success in this field. Earlier in 1988, a system of UAE colleges offering more technical education was devised.

Founded by Ministry of higher education in 1997, the Centre of Excellence for Applied Research and Training (CERT) is the commercial arm of the Higher Colleges of Technology and provides education, training and applied technology.

### **Other Vocational & Technical Centers**

ADNOC Technical Institute (ATI), formerly Abu Dhabi National Oil Company (ADNOC) Career Development Center (CDC), was established in 1978 (United Arab Emirates. Technical Education, 2011). ATI offers training programs that meet the needs of ADNOC in Process Operations, Mechanics, Electricity and Instrumentation Technology.

UAE's education landscape (Wilkins, 2010) has changed dramatically since the establishment of several purpose-built zones in all emirates, which have provided an attractive location for international institutions of technical education in UAE, thereby increasing the provision of quality higher education to its citizens and residents. Due to the forward-looking policies and dynamic facilities and infrastructure, a number of Free Zones have attracted higher education institutions from all around the world to provide high-quality international degrees in an environment where alternative licensing provisions are available. International branch campuses have contributed significantly to the growth of technical education in UAE, and the last decade has seen the technical education student population quadruple in UAE. By providing an accredited degree from the home institution, these universities are meeting the demand from Emiratis and resident expatriates, as well as attracting international students.

Emirates Aviation College - Aerospace and Academic Studies was established in 1991 by the Department of Civil Aviation, initially to provide aviation-related training to students and

corporate organizations. Petroleum Institute (PI), which was created in 2001, with the goal of establishing itself as a world-class institution in engineering education and research in areas of significance to the oil and gas and the broader energy industries.

Chairman of the Board of Directors - Director General, Knowledge & Human Development Authority (KHDA) (Fox & Al Karam, 2011, p.5) expressed that UAE is considered as a regional hub for trade, tourism and business at the intersection of the East and the West. Similarly, UAE's reputation as a regional hub for good-quality technical education is growing amongst the business community and students. With the addition of new institutes in 2011, UAE now has the highest number of international branch campuses in the world. Also UAE has the largest and most diverse group of faculty members and transnational students. Such diversity offers the potential for a unique student experience that opens the door for links into global networks. UAE's technical education institutions are providing Emirati nationals and expatriates with the higher-level skills and abilities to sustain the growth of UAE's economy.

Executive Director of Higher Education, Universities & Colleges Agency, Knowledge & Human Development Authority (KHDA) (Fox & Al Karam, 2011, p.6) describes technical education in UAE as contribution to social and economic progress and lifelong learning. KHDA regularly conducts the University Census to collect the data which provides an overview of the institutions, programs, students and graduates in UAE. The objective of the report is to give information to institutions, parents and students about technical education in UAE, and to provide an accurate picture of the current trends and demands for technical and higher education.

According to the latest report, there is a 10% increase in technical education students in UAE and 18% increase in students studying at institutions in the Free Zones in UAE. This growth reported would enable the education leaders to plan for technical and higher education initiatives in the future accordingly.

### **Quality Standards/Agencies Operating In UAE**

The Commission for Academic Accreditation (CAA) is the Federal Government's Quality Assurance Agency charged with promoting educational excellence across diverse institutions of higher learning in the UAE. Through licensure of post-secondary educational institutions, and accreditation of individual programs, the Commission strives to assure high quality education, consistent with international standards. The stringent measures followed by the CAA to ensure the quality of service delivery, streamlines procedures safeguards the interest of students.

The University and Quality Assurance International Board (UQAIB) was established by KHDA in 2008 to assure the quality of technical education in institutions in the Free Zones. This is an independent board of higher education experts around the world. The Board makes recommendations about issuing educational service permits to new institutions, as well as renewals. It also approves all new programmes offered by technical education providers.

Over the years, the MHESR has sought to improve the quality of education in government universities through various initiatives, including accreditation of both institutions and individual academic programs from North American higher education accreditation agencies. For example, Zayed University has received international accreditation from the US Middle States Commission on Higher Education while the colleges of Business, Engineering and Education in UAE university have received accreditation from US accreditation agencies, namely, AACSB (Association to Advance Collegiate Schools of Business), ABET (Accreditation Board for Engineering and Technology) and NCATE (National Council for Accreditation of Teacher Education) respectively.

## Conclusion

Thus, technical education contributes substantially to the socio-economic development of the country as a whole. The development sustenance of the industrial sector is entirely dependent upon the availability of trained work force to perform the multi-dimensional activities needed to keep the wheel of industry running. The technical education aims towards making available these trained technically qualified hands to serve the industry and society. Technical education system is thus made flexible enough to adapt to rapid change. In the country, the Ministry of higher education plays a lead role in the Technical Education sector.

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