Chapter 17
Syria

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Abstract This chapter surveys the development and current state of e-learning in the Syrian Arab Republic. The author surveys the general social, economic, historical, and demographic background of Syria and provides a review of its educational system. Analysis and statistics on the Information and Communications Technology (ICT) infrastructure, usage of ICT in the country, and challenges and barriers to ICT implementation in education, business, and government are also provided. The chapter further explores in detail the major e-learning platforms, initiatives, and projects throughout the country. Information is additionally provided on accreditation, teacher training programs, and the regulatory framework of e-learning. Finally, the author speculates on the future development of e-learning in Syria. A comprehensive bibliography on e-learning scholarship related to the country, including government reports and websites, appears at the end of the chapter.

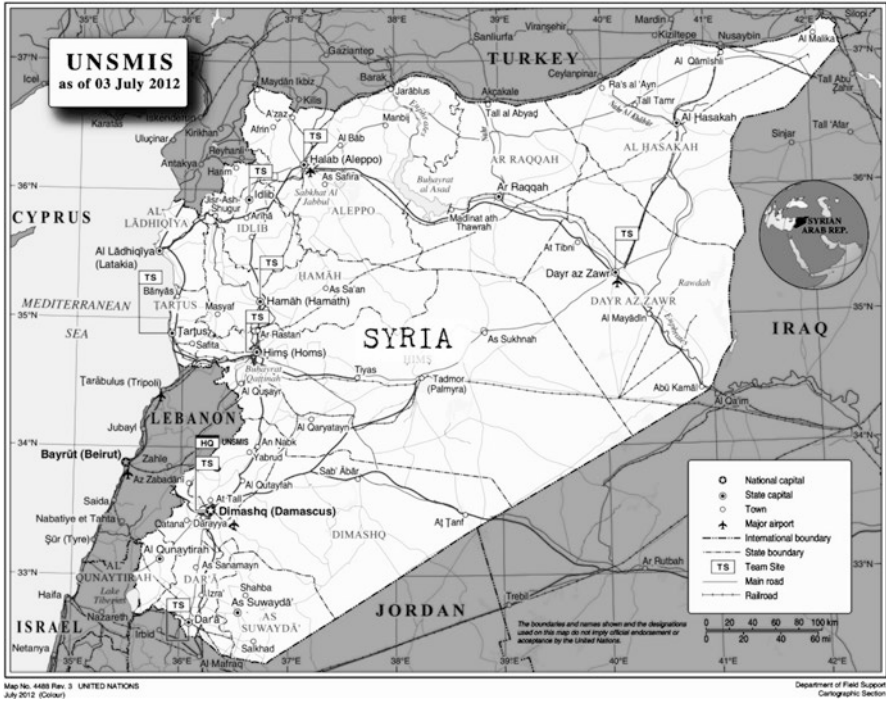**Keywords** Syria • E-learning • Web-based learning • ICT • Internet • Education • Distance learning

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Source: United Nations (Map No.4488, Rev 3. 2017)

Country Profile

According to the population clock of the Syrian Central Bureau for Statistics (CBSS), the population of Syria on November 26, 2016, was 23,497,401 (CBSS 2016). However, since the beginning of the Syrian crises in March 2011, many Syrians have left as refugees, migrants, or visitors to other countries like Turkey, Lebanon, Jordan, Kingdom of Saudi Arabia, Iraq, and Egypt. UNICEF estimates that the number of refugees in the subregion countries will reach 4.69 million by the end of 2016 (Syrian Refugees 2016; World Population Prospects 2016). Syria (see map above) is situated in Southwest Asia in the Middle East at the eastern end of the Mediterranean Sea north of the Arabian Peninsula, with a total area of 185,180 sq. km (The World Fact book 2016).

The Syrian economy is officially based on the socialist ideology that was defined back in 1958; nonetheless some economic activities in certain areas allow for private businesses (Kjeilen 2016). The GDP stood at US$ 60.2 billion in 2010. The cumulative losses between 2011 and 2015 were estimated at US$ 259.6 billion: US$

169.7 billion in GDP and US$ 89.9 billion in capital stock. Between March 2011 and the end of 2015, the official nominal exchange rate weakened (increased) by 647% and the unofficial rate by 714% (Abu-Ismail et al. 2016). According to the CBSS, at the end of 2015 the inflation rate in consumer prices stood at 448.8% (using 2010 as the base year). In March 2015, the Syrian Center for Policy Research reported that nearly 3 million Syrians have lost their jobs causing the loss of the primary source of income of more than 12 million people. The unemployment rate "surged" from 14.9% in 2011 to 57.7% at the end of 2014. As a result, four out of five Syrians at that point were living in poverty, with 30% of the population living in abject poverty and frequently unable to meet basic household food needs (Economy of Syria 2016). The social, political, and economic developments that took place before the crises precipitated profound changes and realignments in the social structure (Syria 2016) leading after the onset of the crises to much deeper class divisions (Mackinnon 2015).

Arabic is the official language of Syria. Other spoken languages include Kurdish, Armenian, Aramaic, Circassian, French, English, and Turkman (The World Fact book 2016; Kjeilen 2016). The main religious groups in Syria include Sunnis, Alawites, Christians, Druzes, Ismailis, and Shi'as (Kjeilen 2016).

Education in Syria

According to the Syrian constitution (Constitution 2012), education at all levels is free and is a right guaranteed by the state. The law also regulates the cases where higher education (HE) may not be free.

General education is divided into three stages:

1. Basic education: it is compulsory and is divided into two cycles:

   - Basic education - Cycle 1 (K1–K4 elementary)
   - Basic education - Cycle 2 (K5–K9 intermediate).

2. Secondary education: students are admitted into one of the following tracks depending on the grades they attain in their Basic Education Official Exam:

   - General secondary education (scientific or literary track)
   - Vocational secondary education (industrial, agricultural, veterinary, commercial, informatics, and feminine arts) (Ministry Structure 2016).

3. University education (University Regulation Law 2006): students are admitted into one of the following institutions depending on the grades they attain in their Secondary Education Official Exam (Baccalaureate Exam):

   - Universities (public/private)
   - Institutes affiliated to governmental ministries.

To shed light on the size of the Syrian educational system, statistics available in 2010 for pre-university education and between 2010 and 2015 for university education are shown below:

Pre-university education (Education Statistics 2010):

- Basic education: the total number of pupils in (K1–K9) stood at 4,661,872. The pupils who were successful in the Basic Education Official Exam were 255,346.
- Secondary education: the total number of students in (K10–K12) stood at 392,960. The students who succeeded in their Secondary Education Official Exam (Baccalaureate Exam) were 176,666.

University education: Two sets of data are available, one taken in 2010 and another in 2015.

1. 2010 Higher Education Data (Education Statistics 2010):

   - Public universities: students are admitted to different programs depending on the grades attained in their Secondary Education Official Exam. The Ministry of Higher Education (MOHE) announces every year the marks required to enter each program. Students whose grades do not entitle them to go for the major of their choice can opt for another scheme called "Parallel Education," whereby the grade entry requirements are slightly lower but they have to pay tuition fees. When compared with the fees paid at private universities, students enrolled under this scheme pay similar tuition fees. In 2010, the number of students enrolled under this scheme stood at 50,320. The total number of students enrolled in public universities was 338,667, out of which 71,717 were new enrollees. The number of students who graduated with a first degree (bachelor) was 38,555. The number of students who received HE degrees was 3776 (diploma (1380), masters (2084), PhD (312)). The number of academic staff was 10,202.
   - The open learning center (state owned): the total number of students enrolled in this mode of distance education was 147,575. The number of graduates stood at 8950.
   - The Syrian Virtual University (SVU): the total number of students enrolled in virtual learning in 2010 was 8103. The total number of graduates (diploma, bachelor's, and master's degree) was 1580, and the number of academic staff was 420.
   - Private universities: the total number of students enrolled in private universities was 24,573 out of which 6180 were fresh enrollees. The number of graduates with a bachelor's degree was 2025.
   - Higher institutes: The total number of higher institutes was 17 with a total number of 3019 students and 607 graduates (diploma, bachelor's, and master's degree).

Table 17.1 Higher education students (2014–2015)

Description		Student		
		Male	Female	Total
Undergraduate students	Public universities	207,166	255,772	462,938
	Nursing school	–	868	868
	SVU	1055	597	1652
	Higher institutes	574	199	773
	Sum of undergraduate students	208,795	257,436	466,231
Postgraduate students	Public universities	13,107	10,175	23,282
	SVU	965	54	1019
	Higher institutes	331	192	34,824
Open learning students		122,491	98,424	220,915
Private university students		20,719		20,719
Technical intermediate institutes of MHE		17,345	11,912	29,257
Sum of higher education students		338,758	378,193	761,946

- Intermediate institutes: They are two kinds. The first is affiliated to the MOHE (53 institutes) with a total number of 36,636 students and 9708 graduates. The second is affiliated to other ministries (130 institutes) with a total number of 89,024 students and 22,167 graduates.

2. 2015 Higher Education Data: the latest statistics issued by the MOHE (Statistics 2014–2015, 2015) is summarized in Table 17.1 below.

In view of the above data, four important observations can be made:

- The spread of the e-learning culture is very slow. After 13 years of its initiation, the number of SVU students represented only 1.3/1000 of HE students.
- Over 1/3 of students are paying for their university education, and the trend is rising.
- Private education is declining.
- The number of graduates in relation to the total number of students suggests that the graduation rates (Fast Facts 2016) in all universities and institutes in Syria are generally low especially in open/distance learning.

According to Abu-Ismail et al. (2016) and after 5 years of conflict, the portion of the population with access to education fell from 95% to less than 75% in 2015. This was mainly the result of the loss of the infrastructure and the shortage of teachers. In 2015, more than 27% of schools reported staff shortages as opposed to 0.3% in 2010. According to the Syrian Ministry of Education (MOE), in 2015, 5800 schools (26% of the national total) were out of service due to either destruction, inaccessibility (5200), or because they were transformed into shelters for internally

displaced people (600). All this led to a tragic increase in the number of out-of-school children. By 2015, many children had been out of school for several years. In Syria, around two million school-aged children were not attending schools, and another 446,000 were at risk of dropping out.

At the same time, 713,000 refugee children in neighboring countries (53% of all school-aged refugee children) were not enrolled in schools. One fifth of those who did attend school were in unofficial schools. Similarly, the national ratio of enrolment in primary education fell from 98% in 2010 to 70% in 2013 and to a further 61.5% in 2015. In 2015, a growing number of college-aged males, compared with 2013, were either caught up in the fighting or had fled the country. The conflict has also had its impact on the rate of literacy. Between 2010 and 2013, the national literacy rate of persons aged 15–24 years fell slightly from 94.9% to 94.6%. Since then, it has dropped to 91.2%, which means that around 360,000 of young Syrians are illiterate. In addition to that, Warden (2016) reported that enrolment as a proportion of 18–22 years old has dropped from 25% pre-conflict to 10% today, and more than 40% of faculty members have left the country, so universities have lost some of their best academic capital.

Administration and Financing

The administration of the educational system tends to be decentralized. However, centralized management assisted by local authorities is still prevalent with regard to planning and general orientation. The MOE is responsible for pre-university education. In the context of extending decentralization, some authority has been delegated to the directorates of education in the governorates – or provinces – and to governorate councils who with the help of their executive bureaus, for example, are authorized to open new primary/secondary schools. The MOHE is responsible for universities and some intermediate and HE institutes. The process of planning and definition of academic programs is centralized, while its implementation is decentralized. Coordination is ensured through the Higher Education Council (HEC) which is headed by the minister of HE. The Ministry of Culture is responsible for promoting literacy initiatives/activities. The Ministry of Social Affairs and Labor is in charge of the disabled and oversees day-care centers (World Data on Education-Syria 2010/2011).

The Syrian government plays a major role in the supervision and control of HE. In terms of paperwork, the system is highly centralized with no significant role delegated at the departmental level; all academic staff appointments and promotions are issued by ministerial decrees. All curricula developments have to be approved by the HEC. A government committee called the "University Admissions Committee," headed by the Prime Minister and in consultation with universities and

the MOHE determines the distribution and number of students to be admitted to HE each year. The government also plays a regulatory role for the newly established private universities. Licenses for these universities are issued provided that certain guidelines and rules set by the HEC are met (Higher Education in Syria 2012). Alyan and Rohde (2012) pointed out that until 2001, the educational system in Syria was strongly centralized, bureaucratic, and subject to direct governmental supervision.

The government expenditure on education in 2009 was 5.13% of GDP and 19.18% of total government expenditure (Country Profile, SYR 2016). Since 2011, the government expenditure on education has fallen from an average of 5% of the GDP in 2000–2010 to 3%. It is worth mentioning that the GDP shrank considerably between the two periods. In actual fact, the GDP dropped from US$ 60.2 billion in 2010 to US$ 27.2 in 2015 (Abu-Ismail et al. 2016).

Policies

Free education, books at affordable prices, and giving every student the opportunity to pursue HE are some of the popular policies that have been implemented for a long time but not without some shortcomings. It has been frequently argued that these policies have led to a dramatic increase in enrollment at the expense of quality. Acknowledging this problem, Dalbani (2013, p. 61) proposed the use of technology-mediated learning environments to resolve the quantity versus quality dilemma in the department of English at Damascus University.

The 2005 National Human Development Report which was launched by the State Planning Commission and the United Nations Development Program (UNDP) identifies the clear malfunctions in the internal and external efficiency in the Syrian education system and the weak relationship with labor market requirements. Thus, it calls for education within a broader perspective for economic, social, and political reform (National Human Development Report 2005 2016). The report concluded that the Syrian investments in achieving "education for all" were countered by a high level of waste, resulting in a low quality of educational output (Alyan and Rohde 2012).

Curricula

In Syria, the curricula for all stages of education are the responsibility of the state. However, there is no continuous process of curricular development, and hence any curricular change or development will take time and will require major changes.

The National Center for Curriculum Development is responsible for curricular changes in the pre-university educational stage (NCCD 2016). All books needed for this stage can be bought at affordable prices and/or can be freely downloaded from the Ministry's website. As for the HE curricula, the HEC is the body that approves the syllabi for all universities and institutes.

Reforms and Development

In 2010 and with the support of UNICEF, a major reform of the primary and secondary educational system was implemented. This system replaced the old outdated one and included the introduction of new UNICEF-supported curricula accompanied by relevant teacher training to enable teachers to adjust to the teaching of the new syllabi. The model was tailored specifically to enhance active learning in as many as 5000 schools over the subsequent 5 years (UNICEF 2010).

As regards to HE reform, the hurdles were more challenging. In a presentation entitled "ICT Strategy in HE in Syria," Abdul-Wahed and Al-Awa (2006) pinpointed the current challenges to Syrian HE:

- Huge number of students
- Low enrolment rate (relatively)
- Insufficient infrastructure
- Information, textbook unavailability
- Traditional teaching styles
- Incompatibility with market needs.

Thus, the introduction of reform to HE was much more complex and difficult as evidenced in the extensive studies and strategy reviews that were carried out since the beginning of the new millennium:

- *The Framework for a HE Strategy in Syria* – by Quentin Thompson and Sachi Hatakenaka (2001)
- *Towards a Reform Strategy for the Syrian HE System* – by the MOHE (2004)
- *The National Human Development Report* – by the UNDP and the Prime Minister's Office (2005)
- *The 10th 5 Year Plan* – chapter on HE and scientific research (2006)
- *The Analysis of the Syrian Strategy for the Reform of the HE System* – EU (2006)
- *HE in Syria* – Strategy Implementation Report by Bahram Bekhradnia, HEPI (2009).

In the *Global Post*, Birke wrote in 2010 that "Syria is facing an education crises: A rising - and young - population is stretching the facilities, while rapidly changing demands of the domestic job market, notably English and IT skills, are outpacing university reforms" (2010). All this reaffirms the need for reform in HE in Syria, yet

it is still not clear how this can be best implemented. China, for example, which has a similar state system, employed extensive reforms with Chinese characteristics between 1982 and 2008. The process of development included the Communist Party of China and reinvented the government (Evans 2011). Today, China has seven universities in the world top 100 (World Rank 2016).

Development in Syria is carried out according to successive five-year plans. In the eleventh five-year plan (2011–2015), the annual investment allocated for the development of HE was around US$ 265 million on average (The Eleventh 5 Years Plan for Higher Education 2010). This demonstrates the limited resources allocated for the development of HE.

International Outcome Indicators and Rankings

Useful education outcome indicators in the Middle East and North Africa (MENA) region – which includes Syria – can be found in the World Bank report, *The Education Reform in the Middle East and Africa* (2008). In Chap. 6, the analysis carried on the MENA countries between 1970 and 2003 reveals a number of notable observations:

- There are significant variations in outcomes among MENA countries.
- The more successful countries seem to have education systems that exhibit a good mix of engineering, incentives, and public accountability.
- For the provision of education at all levels, more countries are increasingly relying on the private sector.

In Syria, there are 7 public universities, 20 private universities, with 1 new university – Almanara University – recently added to the list, and 15 higher institutes (MOHE 2016) in addition to 2 more, namely, the "Planning Institute for Economic and Social Development" (PIESD 2016) and the "Higher Institute for Applied Sciences and Technology" (HIAST 2016). Table 17.2 displays the Syrian universities and institutes that have been ranked by Webometrics (World Rank 2016). The figures indicate that 45% of Syrian universities and institutes have no ranking.

E-Learning in SYRIA

Introduction

Through launching of the Syrian Virtual University (SVU) in 2002, which is the first for-profit public university in the country, Syria became a pioneer in introducing e-learning to the Arab world. However, this endeavor was very modest. In 2004,

Table 17.2 Webometrics ranking of Syrian public and private universities and higher institutes

Ranking	World rank	University	Presence rank	Impact rank	Openness rank	Excellence rank
1	3547	Institut Supérieur des Sciences Appliquées et de Technologie Damascus	7703	772	4121	5269
2	4245	Damascus University	5124	9603	4121	3008
3	7136	Tishreen University	4888	13,747	4121	3887
4	8286	A1 Baath University	4938	12,185	4121	4706
5	8693	Institut français du Proche-Orient Damas	9434	7196	4121	5824
6	10,455	Syrian Virtual University	3762	10,971	4121	5824
7	11,846	University of Kalamoon	11,186	13,325	4121	5269
8	14,207	(3) University of Aleppo College of Pharmacy	21,874	20,438	4121	3360
9	14,985	International University for Science and Technology	15,704	14,509	4121	5824
10	15,487	Arab International University Damascus	12,330	15,727	4121	5824
11	16,571	Wadi International University	3147	18,688	4121	5824
12	18,702	Higher Institute of Business Administration	18,900	18,437	4121	5824
13	19,432	Syrian International Academy	19,919	19,112	4121	5824
14	19800	Al-Furat University	26,220	19,939	4121	4706
15	19,994	A1 Hawash Private University for Pharmacy and Cosmetology	15,086	20,422	4121	5824
16	20,291	Al Jazeera University	22,030	19,811	4121	5824
17	20,578	Yarmouk Private University	21,739	20,173	4121	5824
18	20,773	Syrian Private University (International Private University for Science and Technology)	15,354	21,129	4121	5824
19	21,167	A1 Andalus university	13,544	21,673	4121	5824
20	21,324	Ittihad Private University	21,057	21,080	4121	5824

(continued)

Table 17.2 (continued)

Ranking	World rank	University	Presence rank	Impact rank	Openness rank	Excellence rank
21	22,445	Al-Wataniya Private University	17,290	22,549	4121	5824
22	22,500	Mamoun Private University of Science and Technology	26,220	20,723	4121	5824
23	24,121	Institut National D'Administration	15,601	23,700	4121	5824
24	25,619	Al-Shahbaa University	24,748	23,700	4121	5824

Bender (2004) quoted Milad Fares Sebaaly – who was then the university's provost – as saying that the university now serves more than 1000 students, but around 135,000 students graduate from Syrian high schools every year and existing colleges can only handle 80,000 students. Bender further reported that "one of the biggest obstacles to distance education in developing nations is acquiring the technology to make it accessible. Although many universities have well-developed internal computer networks, some have yet to acquire high-speed internet access." "A true revolution in e-learning requires high-speed access and high Internet penetration rates to the World Wide Web, and the flexibility to offer a variety of media" (Machado and Demiray 2012). Gong et al. (2007) and Lee-Kelley and James (2005) suggest that an increase in the Internet penetration rate is also influenced by non-income factors like culture and the government's attitude toward new technologies. Machado and Demiray (2012) classify Syria among the countries that are hard to be optimistic about. Their findings indicate that Syria is a country that has strict state control over the IT sector and that it is classified among those countries that have few universities that provide e-learning/blended learning.

History of E-Learning

The pioneer ICT specialists in Syria were able to convince the country's leadership about the power and impact of ICT and succeeded in gaining support. This led to the formulation of the Syrian Computer Society (SCS) in 1989. The goals of the SCS are to disseminate the IT culture in the Syrian society and to help encourage and organize the country's information technology and communications market (Syrian Computer Society (SCS) 2016). The SCS acts as Syria's domain name registration authority and has been reported to be closely associated with the Syrian state (Syrian Computer Society 2016). The society paved the way to the introduction of several important initiatives including the private mobile telecommunication providers

(2000), the establishment of colleges and intermediate institutes in informatics (2000), the establishment of departments and intermediate institutes in computer and automation engineering (2001), and the launching of the SVU (2002).

In April 2014, Dr. Riyadh Al Dawoodi, the president of the SVU, announced that at the end of 2013, the number of registered students exceeded 17,000, the number of the bachelor's degree graduates reached 5165, and the number of master's degree graduates reached 516 (Ministry of Higher Education (MOHE) 2016). In 2014, the government announced the establishment of "the Syrian Electronic School."

Specific Projects and Initiatives

The following are two good examples of e-learning initiatives inside Syria:

- *Utilization of Cloud Technologies*

    A summary of the initiative of Wannous et al. (2014) is presented in the abstract of their article which reports that due to the crises in Syria, most of the private universities around Damascus had to abandon their campuses and move to safer locations inside the city. But these locations were not equipped with any system for enabling the delivery of course material over the Internet. Also, investing in a new system was not feasible. So, the teaching staff thought of using the free storage service offered by a number of providers on the Internet for hosting course contents as a start. This worked well, but it did not fulfill all necessary functions. Therefore, they started working on a new system utilizing cloud computing for managing courses. The new system utilizes a "platform as a service" model offered for free on the web to enable distributing course materials electronically as a first step and is intended to gradually perform more functions.

    This confirms an earlier finding by Weber who contends that cloud computing holds many benefits for the MENA region and the Arabic-speaking countries in which e-learning systems are coming to maturity (2011).

- *Digital Lectures*

    The other initiative was a case study that utilized digital lectures in post-graduate programs at the Faculty of Tourism at Damascus University as a solution to Syrian HE brain drain. Results indicated that personal innovativeness and satisfaction with the quality of services have a significant effect on students' behavioral intention of accepting digital lectures. Moreover, students regarded the use of digital lectures as an alternative to continuing their post-graduate studies abroad given the current restrictions on the mobility of Syrians today. For future successful implementation of e-learning modules, the researcher asserts the need to take into account the infrastructure-related issues (Ramadan 2016, p. 9).

International Collaborations

Most international collaborations today concentrate on providing Syrians with urgent humanitarian aid. After the crises began and in their efforts to help the refugees, many attempted to establish virtual and conventional schools and universities, but not without challenges. The main obstacles that had to be dealt with in Turkey, for example, were recognition and financing (Kudhur 2016). Listed below are some examples of the educational projects that were initiated before the crises:

- *Syrian Higher Education and Research Network (SHERN)*
     With the cooperation of the UNDP, the MOHE launched the project SHERN which aspired to electronically link via the Internet Syrian universities and HE institutes. The project was implemented in 2004 (The Syrian Report 2016).

- *The Network: EUMEDCONNECT*
     The EUMEDCONNECT project is a pioneering initiative to establish an IP-based network that serves the research and education communities of the Mediterranean region and is linked to the pan-European GÉANT network (GÉANT 2016).

More recently, "digital humanitarianism" initiatives such as the "ReDI School of Digital Integration" and the blended learning programs named "Kiron" were directed to the educated and highly motivated refugees (Benton 2016). Two of the current significant initiatives that were able to offer e-learning to Syrians are:

- *Kiron.ngo* (https://kiron.ngo/): Kiron is a nongovernmental organization funded by donations. It is based in Berlin and has offices in Jordan, Turkey, and France. It uses blended learning and offers free world-class university education to refugees from any country including Syria. Participants take 2 years of online classes, which can be followed by 1 year of study at a partner university that recognizes Kiron's credits. To date, it has over 1500 full-time students and 22 partner universities.
- *The University of the People* (http://www.uopeople.edu/): offers tuition-free accredited online degrees to Syrian refugees in computer science and business administration. Starting fall 2015, and in response to the crisis in Syria, the university committed itself to accepting at least 500 refugees – mainly from Syria – with scholarships to pursue associate's and bachelor's degrees.

Curricula

In their study on a large number of virtual and virtual/traditional universities, Ajami and Kasmieh (2013) found that the programs offered most online/blended are in the fields of information technology and business administration, followed by programs

in humanities, arts, and public health. Most SVU programs and curricula are designed in line with similar international or Syrian programs. Some courses are delivered in English, but the majority are delivered in Arabic. In another study on e-learning English at the SVU and to maximize learner autonomy, Dalbani (2010) recommended the teaching of learning skills alongside the teaching of language skills. In short, the outdated LMS at the SVU, Internet speeds and service interruptions, the power outages, and the political crises in Syria have hindered efforts to develop the curricula or make the courses more interactive or enable instructors to fully exploit e-learning tools like text and video files and simulation programs.

Case Studies of Specific Programs

Two case studies are described below. The first was completed before the beginning of the crises, and the second was completed during the crises:

- E-Learning system (http://mars.wiwi.hu-berlin.de/mediawiki/mmstat_ar) in statistics in the Arabic language

  – This case study describes how an Arabic e-learning course in statistics was developed. The study discussed problems concerning learning in Arab countries while highlighting the difficulties of applying e-learning in the Arabic world as well as designing an Arabic platform with its linguistic and technical challenges (Ahmad et al. 2012, pp. 481–491).

- Gherbetna (http://8rbtna.com/) platform

  – A young Syrian computer science student who sought refuge in Turkey developed a free smartphone app and website for Syrians living in Turkey which he called Gherbetna. This platform offers information – for example, job listings – and connections through allowing users to ask for help from the app's community of contributors. It is estimated that since its launch in 2014, Gherbetna has been downloaded by more than 50,000 people (Benton 2016).

Projects and Programs

In 2003, the government approved a new technological requirements strategy for e-administration and e-government. The projects and programs related to the achievement of this strategy were (Hassan 2009):

- Strengthening the Institutional Capacity of the Peoples' Assembly in Syria.
- E-Strategy for Syria: this project aims at creating a platform for analyzing national needs.
- The strategic ICT program for socioeconomic development in Syria.

- Support for administrative development.
- The electronic library.
- The Syrian Virtual University.
- The E-Village: aims to act as an incubator for small ICT companies and small businesses.
- The Syrian HE and Research Network (SHERN).

Another important project concerned with e-archaeology was developed. This project known as E-Archaeology + is described by its team (Abajian et al. 2008) as concerned with the management of documents on antiquities and monuments. Globally, E-Archaeology + appears as an expert system of archaeology data capture, storage, and analysis. The plus sign added to its name (E-Archaeology +) indicates that the project is intended to be used as an international tool.

After the onset of the crises in March 2011, many officials, scholars, and volunteers believed that e-learning holds the answer to many problems, and hence several initiatives were proposed. Listed below are some of the most important initiatives:

- *Digital School* (https://digitalschoolsy.com/) is a comprehensive initiative that is promising education to K1–K12 Syrian students inside and outside the country. First stage launched 31/10/2016.
- *Tamkeen* (http://tamkeen-edu.org/index.php) is the website of Tamkeen training establishment that aims at offering professional training virtually and on the ground (in Syria).
- *Syrian Electronic School* (http://www.eschoolsy.net/) aims at educating all Syrians from K1–K12 using the Syrian curricula. It also provides a platform for students to download textbooks and exercises along with their solutions.
- *3lom4all.com* (https://www.3lom4all.com/vb/) is a website similar to the Syrian Electronic School.
- *Orient Establishment for Humanitarian Work* (http://www.orienths.net/) is an NGO which offers medical, educational, and aid activities for refugees in Turkey. It also seeks to offer e-learning from K1–K12. It releases YouTube videos containing a series of lectures in Math, Physics, English, and other subjects.
- *Alzahraa University* (http://alzahraa-university.com/en) is located in Gaziantep in Turkey. One of its objectives is to make an agreement with the International University of Africa in Sudan in order to establish programs and achieve accreditation.
- *Jamiya Project* (http://jamiya.org/) is an initiative which aims at providing HE to Syrian refugees through pursuing improved education opportunities for asylum seekers, refugees, and conflict-affected communities.
- *Homs Center for Virtual Education* (Homs Center for Virtual Learning 2016) is located in Syria and aims at providing e-learning to people in its area. The center also tries to secure grants for students to study in accredited universities outside Syria.

Ranking Internet and Telecommunications Capabilities

Internet services became available in Syria in 1999. In 2003, the Ministry of Communications and Technology was established. A "national ICT strategy for socioeconomic development in Syria" was prepared with the assistance of the United Nations Development Program (UNDP) and was adopted by the government in 2004. According to recent statistics (Internet World Stats 2016), updated June 30, 2016, there are about 5.5 million Internet users in Syria, as opposed to 3.6 million in 2010 and 30,000 in 2000. The number of users in Lebanon is about 4.5 million and in Jordan about 5.6 million. The penetration rate (number of users/population) is 29.6% in Syria, 75.9% in Lebanon, and 73.6% in Jordan, which shows that Syria is far behind its neighboring countries. Overall and according to "Statistics and Analyses" (2016), the telecoms sector in Syria is growing, albeit slowly and in varying degrees depending on the geographic area. In general, Syria has a reasonably high mobile penetration of over 60%.

National ICT and E-Learning Goals

The ICT strategy for economic and social development adopted by the Ministry of Communication and Technology acknowledges the contribution of the young Syrian Virtual University in establishing connections with worldwide international universities and in facilitating on-the-job training. They highlight the value of developing the SVU in order to contribute more to rehabilitation and ongoing training (MOCT 2003). However, Hamdan (2010) listed numerous obstacles (reported by a Syrian ICT professional) that hinder the integration of ICT in education:

- Diffused responsibility for policy implementation of ICT
- Lack of information on needs and requirements of schools and pupils upon which to base policy initiatives
- Limited finances supporting different aspects of provision or funding
- Lack of specialist teacher training and limited options available for training
- Limited availability of specialists in hardware and software resources
- Lack of formal national support infrastructure for ICT
- Insufficient number of qualified specialists at the regional level
- Limited availability of information specialist (particularly online) resources
- Lack of communication facilities in some areas
- Poor spending, which stands below world average (2007)
- Unemployment of university graduates which reached 27% for males and 30% for females
- Irrelevant training for ICT literacy and skills.

E-Learning Education Programs, Degrees, Associations, Certifications, and Accreditation

E-Learning Education Programs

The SVU offers 18 academic programs, the most popular of which are postgraduate diploma in Education, Bachelor in Information Technology, and Higher National Diploma SVU (Syrian Virtual University 2016a). Kiron uses blended learning and has four tracks leading to bachelor degrees in Business and Economics, Computer Science, Engineering, and Social Sciences. The University of the people offers the Syrian refugees associate and bachelor degrees in Computer Science and Business Administration.

Teacher Training Programs

The SVU dedicates one of its programs to teacher training. This popular program leads to a Postgraduate Diploma in Education and has attracted many students over the years. It targets university graduates who are not qualified in teaching (Program of Education Habilitation Diploma 2016). Still, Machado and Demiray (2012) classify Syria among countries that lack adequate teacher training. With respect to technology integration, Albirini (2004) in his PhD thesis found that teachers have a positive attitude toward ICT training, and he recommended offering them more training opportunities. Another study (Albirini 2006a, p. 395) highlighted the importance of the teachers' vision of technology, their experiences, and the cultural conditions that surround its introduction into schools in shaping their attitudes toward technology and its subsequent diffusion into their educational practice.

Granted Degrees

The degrees awarded through online and/or blended learning in Syria are:

- The SVU awards diplomas, bachelor degrees, HE diplomas, and master degrees.
- Kiron grants bachelor degree only.
- The University of the people grants associate and bachelor degrees to Syrian refugees.

Training of E- Learning Instructors and Professional Associations

There is no formal IT training for SVU instructors; however, the SVU IT support team provides necessary help and support for SVU students and instructors when faced with any technical issues SVU (Syrian Virtual University 2016b). In contrast, Tunis Virtual University overcame this issue by providing training to e-learning instructors from inside and outside the university (Tunis Virtual University 2016). In a research on the quality system of the SVU, Alaseel (2011, p. 95) suggested that both faculty members and administration staff should undertake training courses to qualify them in IT. Mirza and Al-Abdulkareem (2011, p. 92) emphasized the need to give training and workshops more attention to increase the faculty perception of the importance of e-learning. Many of the e-learning specialists and instructors in Syria are members in the Syrian Computer Society (SCS).

Regulation of E-Learning

E-learning is not yet regulated in Syria and that is why the establishment of the SVU required a presidential decree. Starting a private e-learning facility is not possible either. Mirza and Al-Abdulkareem (2011) pointed out that the availability of by-laws that govern e-learning will help encourage more students to join e-learning programs.

Accreditation of Programs

The SVU programs are not accredited by any regional or international accreditation body. But since it is a state university, the degrees awarded by the university are generally recognized inside Syria. It is worth mentioning that the SVU has quality assurance measures that apply quality control procedures through effective work measures (Quality Assurance 2016).

In a study by two SVU faculty members, Ajami and Kasmieh (2013) reported a drop in the ratio of graduate/registered students from 61% in 2004 to 25% in 2010. In their interpretation of the continued drop in the ratio, they listed reasons like the Syrian crises and the lack of students' seriousness. They added that the high drop-out rate affirms the fact that SVU does not allow, under any circumstances, substandard students to graduate without achieving all university requisites. These practices, they believe, reaffirm the strict quality assurance measures that are implemented by the SVU. Another study by Ajami and Mazloum (2014) on the SVU's Bachelor Program in Information Technology (BIT) revealed a significant drop in the number of graduates between 2011 and 2013 and that result again, they believe, could have been caused by the Syrian crises.

It is worth noting here that the SVU provides its officially registered male students with the necessary documents that enable them to defer their military service. It is also a well-known fact in Syria that some male students register in HE mainly to defer their military service. Therefore, the possibility that this phenomenon has intensified during the crises cannot be eliminated. In an investigation of the SVU quality system, Alaseel (2011, pp. 94–95) found that the extent of total quality management (TQM) application at SVU is moderate. To enhance quality, she suggested that the SVU needs to follow up on its graduates and contribute more to securing job opportunities.

There is also a deep and growing concern among scholars regarding the possibility of increased plagiarism especially in higher degree research projects. This is due to the inadequacy of deterrent measures and the limited research resources (e.g., financing and access to e-libraries). Colareza et al. (2016) touched briefly on this point when they indicated that when an e-learning phase was applied in HE in Syria and Turkey, some of the limitations that emerged were increased plagiarism, long time spent in front of computers, and impersonal relations with universities.

Future Development and E-Learning Prospects

Planned investments and development include:

- *No Syrian child left behind* is an e-learning initiative announced on March 23, 2016, and is expected to reach nearly 2 million Syrian students wherever they are, in regular classrooms or displaced with no access to teachers and text books. The initiative is funded by the Islamic Development Bank (IDB) in collaboration with Qatar Charity and the Syrian Scientific Society. The educational materials meet the highest professional and educational standards (Educational Initiative for Syrian Students 2016).
- *The Syrian Electronic School*: In 2014, the Syrian government announced the establishment of "the Syrian Electronic School" (Ministry of Education 2016). The school aims at making distance learning available to classes K1–K12.
- *Sendian* is an initiative based on the success of RWAQ (https://www.rwaq.org/) which is a platform for open learning in Arabic. In this initiative three volunteers are trying to bring three parties together: RWAQ and RAF Foundation for humanitarian services (RAF 2016) and some Arab Universities who will be the providers of programs, assessment, and accredited certificates (Sendian 2016). Its objective is to make e-learning available and accessible to refugees to study online in specially equipped centers that will be made available in refugee camps.
- *The UNESCO Response*: Bokova in the *Regional Education Response Strategy for the Syrian Crises* (2016) reports that today 4,320,000 Syrians need education. The UNESCO Regional Education Response Strategy addresses the learning gaps of youth in Syria and other countries in the region. The total cost of the program is estimated at 80 million, of which US$20 million have been secured.

To date, the crises have caused a destructive effect on the Syrian education system including e-learning. The existing infrastructure has been severely damaged, and a significant proportion of Syrian children and youth have been left without education. If the crises continue, its impact will be far more devastating considering that the international humanitarian aid has been unable to face the magnitude of the crises. Many around the world are confident that e-learning has a promising future globally and for the Syrians in particular. However, it is widely believed that the reasons which are hindering a political settlement to the Syrian crises today are themselves the reasons that are impeding the e-learning projects. Even so, all e-learning initiatives at this stage are urged to overcome all the hurdles, for they are the only hope for a better future for e-learning in Syria.

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