

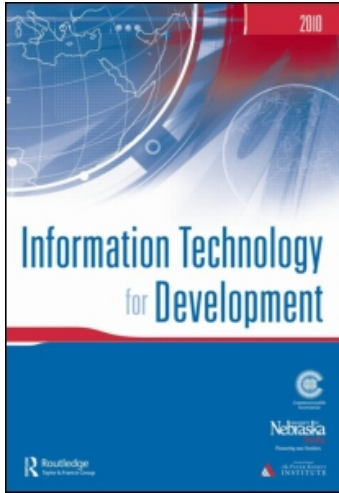
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### An e-learning approach to secondary education in Palestine: opportunities and challenges

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## An e-learning approach to secondary education in Palestine: opportunities and challenges

Khitam Shraim<sup>a\*</sup> and Zuheir Khlaif<sup>b</sup>

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The rapid growth of ICT, especially the Internet, opens up the possibility of a new teaching and learning paradigm. The e-learning approach has internationally been deemed necessary to enable twenty-first century learners to adapt to global changes. This paper explores the potential of e-learning methods in conflict situation with mobility restrictions to enhance the educational process and to provide continuous learning for secondary students in Palestine. An interactive web-based application prototype called the Alaws Educational Network (AEN) developed providing a variety of methods for a student-centered learning process including virtual classrooms, a discussion forum and e-training courses. Students and teachers were asked to evaluate different aspects of the AEN in terms of usefulness, self-efficacy, willingness and challenges as indications of their ability and readiness to embrace e-learning. The results show that both students and teachers have positive attitudes towards the usefulness of e-learning methods but that they might not yet be ready to adopt them. This paper further highlights several challenges to implementing e-learning in public schools in developing countries and discusses the opportunities offered by e-learning technologies in a conflict context.

**Keywords:** e-learning; student-centered learning; readiness; conflict context; Palestine

### 1. Introduction

The rapid pace of technological and economic developments has placed greater demands on education systems. The crucial need for students is to focus on the importance of lifelong learning, that is, to upgrade their knowledge and skills continuously, to think critically and to inspire creativity and innovation so as to adapt to global change (UNESCO, 2004). Recently, a new teaching and learning paradigm, e-learning, has emerged as a result of the rapid diffusion of ICT. E-learning is presently considered by many as an innovation which will improve access to advanced educational experiences by allowing students and teachers to participate in remote learning communities and to improve quality and effectiveness of education by supporting a collaborative learning process (Appana, 2008; Cruthers, 2008; Watson, Winograd, & Kalmon, 2004). Particularly in many developing countries, however, there are numerous challenges such as technical and organizational problems and the readiness of teachers and students (Andersson & Gronlund, 2009).

Educational development in Palestine is described as a challenging experience due to the ongoing Palestinian–Israeli conflict and repeated emergencies. For many years, the educational system has been deeply affected by the frequent closure and mobility restrictions, particularly since the *Al-Aqsa Intifada* (meaning “uprising” in Arabic) in September 2000. This has been exacerbated by the separation wall constructed by Israel since June 2002, cutting through a

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Saïd Assar is the accepting Guest Editor for this article.

number of cities and villages, creating a barrier to movement and separating teachers and students from their education institutions (Nicolai, 2007). In response to this situation, teachers have been relocated to schools closer to their homes and this has distorted the distribution of qualified teachers among schools, especially in the fields of mathematics, science and English (PMEHE, 2008). Dropout rates among students are increasing due to difficulties in getting to school safely, reaching 3.5% and 5.7% for males and females, respectively, at the secondary stage in 2006/2007 (PMEHE, 2008). Girls are particularly affected, since parents are especially anxious that they should not have to spend so much time travelling to and from school, be subject to humiliation by Israeli soldiers, nor face other dangers (PMEHE, 2008). School schedules are interrupted; students' and teachers' attendance rates are low; and they spend more time travelling to and from school than learning and teaching. The absence of teachers and the inability to provide substitute teachers cause the students to leave school earlier, so the curriculum requirements for the year are not met (PMEHE, 2008). Many students enroll in private lessons, which are expensive and not affordable by all families.

These problems indicate that education reform to enhance the learning process is a priority, and eLearning has become a necessity rather than a luxury to improve access to quality education for all Palestinians students (British Council, n.d.). With the help and cooperation of many international organizations, substantial investment and considerable efforts have been made to develop the e-learning approach since 2002. However, its introduction into primary and secondary education is still in the planning process. In a rapidly changing world, the Palestinian Ministry of Education and Higher Education (MoEHE) will need to be flexible and capable of adapting to this new learning approach. Therefore, MoEHE needs to develop an understanding of the requirements for the successful implementation of this learning approach.

While the research literature on adopting e-learning has grown significantly in recent years, much of it focuses specifically on tertiary education and relatively little has been published on its application to primary and secondary schools (Picciano & Seaman, 2007). The main aim of this paper is to investigate the opportunities and challenges of the e-learning paradigm for secondary education in Palestine from the perspective of students and teachers who have experience in using the Alaws Educational Network (AEN). This study will help the MoEHE to identify important and strategic issues facing the transition to e-learning.

The remainder of the paper is organized as follows: Section 2 reviews relevant literature, highlighting the opportunities and challenges of e-learning implementation and adoption. Section 3 introduces the e-learning initiative in Palestine. Section 4 presents the methodology adopted for this research, and Section 5 reports the findings from the questionnaires. The paper concludes with a set of recommendations for the effective introduction of the e-learning paradigm in Palestine.

## 2. Literature review

E-learning is widely recognized as an important means to enhance the accessibility and quality of the teaching-learning process (Appana, 2008; Cruthers, 2008; Vaughan, 2007; Watson et al., 2004). It is viewed as a tool which provides opportunities for marginalized and disadvantaged students or those who are unable to attend classes due to physical, social or economic constraints (Appana, 2008; Cruthers, 2008; Vaughan, 2007; Watson et al., 2004). A wider range of students can be reached anytime and anywhere, provided that an Internet connection is available, thus increasing the number of school-age children who have access to the education system. Besides the flexibility of e-learning, many contributors to the literature indicate that online learning improves the quality of learning, prepares students better for a knowledge-based society, provides lifelong learning opportunities and supports critical thinking skills, problem-solving,

communication and interaction (Appana, 2008; Cavanaugh, 2001; Johnston, Killion, & Oomen, 2005; Swan, 2001). Cruthers (2008) explains further the benefits of this paradigm over the rigid teaching pattern of a physical classroom: it provides the opportunity to pursue learning in an individualized and self-paced way; the learner can instantly raise queries and doubts, receiving feedback without delay, which might not be the case in the physical classroom; and e-learning makes it easier for slow learners to participate, by allowing them more response time. Moreover, session recordings are readily available to students to revisit them as required. In order to reap these benefits, Boulton (2008) emphasizes that students need to develop a range of new skills such as managing their own pace of learning, becoming autonomous learners and taking greater responsibility for their own learning.

While it has many benefits, the e-learning approach also faces many challenges. There is great concern among researchers regarding the issue of the digital divide. As is well known, a significant segment of the population still does not have access to the Internet or lacks the required IT skills. Although the rapid development of ICT provides easier and more affordable connectivity to the Internet, thereby narrowing the digital divide, equitable access will continue to be a major concern to governments worldwide. Consequently, in most countries, e-learning is not for everyone (Kearsley, 2002). Common problems are also indicated by previous studies regarding the new skills required to enable learners and teachers to use and benefit from e-learning models (Andersson and Gronlund, 2009; Picciano & Seaman, 2007; Rozgiene, Medvedeva, & Straková, 2008). Presumably, the more experience they have in using computers and the Internet, the more likely students and teachers will be to accept and use e-learning (Andersson & Gronlund, 2009; Picciano & Seaman, 2007; Rozgiene, Medvedeva, & Straková, 2008). However, many researchers state that specific skills and experience are required to make full use of e-learning technologies such as wikis, blogs, discussion forums, virtual meetings and videoconferences, which are essential to the successful implementation of e-learning (Appana, 2008; Hadad, 2007).

Parents also have concerns about children's social development (Cavanaugh, 2001). In an online environment, students may feel isolated, and e-learning provides various opportunities for learners to interact with each other and with their teachers, such as live chats, discussion boards and group projects, which reduce feelings of isolation (Johnston et al., 2005). Aycock, Garnham, and Kaleta (2002) suggest that this interaction is often fostered by teachers developing new ways to engage their students online and through the creation of online communities. Teacher encouragement and timely responses seems to be significant to enhance learners' motivation and interaction (Johnston et al., 2005; Patronis, 2005; Vaughan, 2007). Many researchers argue that since e-learning is about individuals and about using technology systems to support constructive social interactions, it may work best when it is combined with some face-to-face classroom experience (Appana, 2008; Brown, 2001; Cavanaugh, 2001; Vaughan, 2007).

In general, information technologies present opportunities. The real challenge lies not only in meeting certain preconditions for e-learning, such as access to ICT tools, networks and literacy, but also in changing the perception of teachers and learners towards e-learning. For e-learning implementation to succeed, there is a need to acknowledge the importance of assessing the readiness of organizations, teachers and learners to adopt this learning style (So & Swatman, 2006). An e-learning readiness evaluation can help an organization to identify factors that are necessary to ensure that the design of e-learning strategies are tailored to learners' needs (So & Swatman, 2006) and to examine how teachers and learners come to accept and use an e-learning approach.

A significant body of e-learning literature addresses various issues of readiness. For example, Aydın and Tasci (2005) assessed organizational readiness for e-learning in Turkey in terms of technology, innovation, people and self-development. The study revealed that the organizations were ready for e-learning but needed to improve, particularly in the area of human resources.

Agboola (2006) found that training and confidence were of practical importance in predicting both the adoption of e-learning and readiness for it. So and Swatman (2006) examined how ready primary and secondary school teachers in Hong Kong were to accept and adopt e-learning. They found that respondents were not yet fully prepared to use e-learning technologies, with differences in perceived readiness between males and females, between secondary and primary school teachers and between teachers from different secondary schools. Thowfeek and Hussin (2008) also identified several factors with the potential to influence the acceptance of e-learning by Sri Lankan higher education instructors: students' and instructors' readiness, which included awareness, training and confidence; the need for e-learning, that is, the type of program or course suitable for this mode; infrastructure; institutional support; motivation and incentives; and the e-learning system itself.

### 3. The e-learning initiative in Palestine

Recently, educational institutions in Palestine have increasingly moved toward the use of e-learning as a supplement to classes delivered face-to-face. Almost all Palestinian universities have adopted some form of the e-learning delivery mode for some courses (Mikki & Jondi, 2010). The increased demand for education and the limited resources available for traditional learning, coupled with physical and security obstacles, have made the proposed e-learning innovations viable (EL-Harazin, Mikki, & Abu Day'yah, 2007).

One of the most significant implications of the ongoing conflict in Palestine is ICT proliferation. Palestinians consider ICT an indispensable tool for their survival, facilitating the emergence of more connected societies whose fabric becomes consolidated through access to the Internet and information (Saidam, 2007). As a consequence, for Palestinians, the use of ICT has become a staple feature of policy recommendations by international bodies such as the World Bank, the United Nations Development Programme (UNDP) and the European Union (Zureik, Rohozinski, Collings, & Scholey, 2006). In Palestine, access to the Internet started as early as the beginning of the 1990s. In 2009, the Internet World Stats<sup>1</sup> cited a 14.4% penetration rate of Internet usage among the population of 2.4 million in the West Bank and a growth rate of 915.7% between 2000 and 2009. This trend shows that the size of the digital divide may be narrowing over time. However, there is concern that an Israeli attack or military incursion could at any time interrupt the Internet connection for a period of time.

Several national and international agencies, such as Cisco, the Japan International Cooperation Agency, the British Council, USAID, the Belgian government, the Welfare Association, the Palestinian Academic Network and the Palestinian Information Technology Association of Companies, are currently active in Palestine, supporting and accelerating the adoption of e-learning and ICT-assisted learning (Mikki & Jondi, 2010). For primary and secondary schools, ICT and e-learning curricula are conceived within the framework of the current Education Development Strategic Plan 2008–2012, which has as its core objective to improve the quality of learning by adopting a “paradigm shift from education to learning” and focusing on students acquiring “21st century skills” (PMEHE, 2008). MoEHE is still in the process of planning for e-learning in public schools. For example, the Palestinian Educational Initiative (PEI) was launched in 2005, with the overall objective of improving the utilization of ICT in the education system through public and private collaborations. MoEHE and the Ministry of Telecommunications and Information Technology, with non-government stakeholders and international organizations such as the Massachusetts Institute of Technology, Birzeit University, the World Economic Forum, the UNDP and other business firms, are encouraged to become involved in the implementation of ICT-related initiatives (PEI, 2005). However, the PEI was halted due to the corruption and political rivalry between

the main Palestinian political parties (Euler & Seufert, 2008).<sup>2</sup> A new program for 2008–2011, “e-Learning Curriculum in Primary and Secondary Education”, is under way in cooperation with the Belgian government, to help in the formulation and implementation of the Palestinian e-learning strategy (Risler, 2009).

Other e-learning initiatives for primary and secondary education have been mainly limited to small-scale projects implemented by university departments, with the participation of some schools, teachers and students. One of these was a project piloting the production of e-curricula for schools, conducted from 2005 to 2007 by the Unit for Learning Innovation at the Birzeit University. Within this specific project, e-curricula in Biology and Chemistry for the ninth grade and Geography for the seventh grade were piloted and tested in five schools. Several teachers were trained to design and develop these e-curricula. However, the material developed is not freely available to all schools, as the copyright issue has not yet been resolved between the project partners, Birzeit University and MoEHE (Risler, 2009). Another initiative is the model schools network (MSN) program, which was launched in 2007 and funded by USAID. The MSN program seeks to introduce a student-centered, contemporary approach to teaching and learning in the areas of English, science and mathematics for basic education in grades 1–9. To this end, MSN has developed and is delivering an in-service training program to provide school teachers with the knowledge and skills necessary to teach and lead more effectively within the Palestinian context. The program blends face-to-face trainings and online support through a Virtual Learning Environment. In its initial phase, the MSN program supported 17 private schools in the West Bank. A second phase, beginning in fall 2009, includes an additional 40 public schools.

In general, at public schools, there are many motivated and capable teachers, who are implementing a wide variety of e-practices, from PowerPoint presentations in class to animated video presentations, but these practices support e-teaching rather than e-learning. Learner-centered education is not yet well known and understood by most educationists in Palestine. Several workshops and national conferences have been conducted to raise awareness of the importance of introducing an e-learning approach (Risler, 2009).

Interestingly, AEN,<sup>3</sup> an individual e-learning initiative, has relatively wide recognition and depends mainly on informal networks of committed teachers from various places in Palestine (Risler, 2009). The AEN was launched in 2005 as a discussion forum by highly motivated teachers acting individually. In 2007, the AEN team invited higher secondary students actively participating in the discussion forum to rate their preferences for private lessons or online courses as supplementary methods to prepare them for the annual General Secondary Education Examination. The results showed that online courses were preferred by most respondents.

The WiZiQ platform<sup>4</sup> was chosen to develop the online courses delivered by the AEN. The major factor in determining this choice was financial resources, since the AEN is an individual project. WiZiQ provides a free virtual classroom environment for teachers to interact online and to teach students. The key characteristics of WiZiQ are that it supports a two-way audio communication and a live presenter video, that it works efficiently even with low upload and download bandwidth (minimum of 128 kbps) and that it is compatible with Moodle. Both teachers and students can connect synchronously through WiZiQ, while they can use other asynchronous options available in Moodle (Cruthers, 2008).

In the initial stage, the AEN team carried out several training courses as to how to use WiZiQ for seven motivated teachers specializing in English, Chemistry, Maths and Physics. These teachers were then able to train other trainers. Now, 50 teachers participate regularly in preparing materials in various formats such as PDF, PowerPoint, Documents, Flash files and videos. Furthermore, teachers encourage their students to be involved in preparing their lessons and this modest form of e-learning stimulates initiative, group work and a spirit of research, and facilitates student-centered education (Risler, 2009).

The portal supports a variety of e-learning tools, including virtual classrooms, discussion forums, wikis, blogs and RSS. It provides students with synchronous live classes in different subjects such as English, Physics, Mathematics, Chemistry and Arabic, where they can interact with the tutors and other students, watch, listen, ask questions and record the class with all its activities to complete the course in their own time and to their own schedule, as many times as they wish. Other services provided through the AEN portal include organizing e-training courses for teachers in CourseLab, instructional design, Flash, Photoshop, Dream Weaver, Moodle and Web 2.0 tools. Moreover, there is a room for psychological counseling, which is vital for students suffering from psychological trauma caused by exposure to violence, particularly during the Gaza War of 2008–2009. A significant number of students are unable to concentrate on their studies and have difficulties in time management. Regular meetings with a specialist address problems such as depression, stress, insomnia and anxiety. Participants are largely anonymous. This allows students, especially girls, to talk about family issues, personal experiences and psychosocial aspects of the Arab culture and to express their opinions without fear.

It was noticed that the number of students enrolling in the AEN is on the increase. In 2007, the pilot started with 500 participants and now there are 2500 students and 50 tutors. The AEN is being used extensively among students between March and June. This period is important for the higher secondary students to prepare themselves for the general examination. This is a positive indicator of the potential for many more learners to adopt e-learning methods.

#### **4. Methodology**

The main aim of this paper is to investigate the opportunities and challenges of the e-learning paradigm for secondary education in Palestine from the perspective of students and teachers who have experience in using the AEN portal. The main research questions are:

- What are the perceptions of students and teachers regarding the usefulness (relative advantages) of the AEN?
- To what extent do students and teachers feel ready (in terms of self-efficacy and willingness) to adapt to learning through the AEN?
- What are the main challenges to the introduction of e-learning in Palestine?

Two questionnaires were developed, based on literature related to the e-learning context. The first questionnaire was administered during April 2009 to all 500 higher secondary students actively subscribing to the AEN portal. The second survey was conducted during May 2009 and targeted the 50 teachers who had been participating in introducing online courses. The questionnaires consisted of three parts. In the first, participants were asked for general information. The second asked them about their readiness (self-efficacy and willingness) to implement e-learning, their perceptions of its usefulness and challenges to it. Participants were also asked to comment on the questionnaire in the third section. A total of 100 of the 500 students and all 50 teachers responded to the non-random survey.

The content validity of the questionnaires was assessed by asking three experts in e-learning to provide their judgments on the items. Positive feedback was received and some minor revisions were made to the instrument according to their suggestions. The reliability of the constructs (the extent to which the items in the questionnaire were related to each other (Sekaran, 2003), was examined using Cronbach's alpha. As summarized in Table 1, all values were above 0.70, which is good (Sekaran, 2003).

Table 1. Reliability of the constructs.

Constructs	Items	Cronbach's alpha
Teachers		
Usefulness	5	0.81
Self-efficacy	4	0.75
Willingness	4	0.88
Challenges	4	0.73
Students		
Usefulness	5	0.85
Self-efficacy	4	0.78
Willingness	4	0.84
Challenges	4	0.75

## 5. Findings

Data from 150 respondents (100 students and 50 teachers) to the questionnaires were analyzed separately using descriptive statistical techniques. Table 2 summarizes the respondents' profile.

All students were around the age of 18 years and in the higher secondary classes. Of the students who responded to the survey, 70% were female and 30% male. This unequal gender composition may be the result of a higher female participation in the AEN. Girls in Palestine particularly in rural areas have limited access to education, due to mobility constraints and gender inequalities prevailing in the Middle East. For that reason, The AEN may attract a number of girls and give them more chance to continue their education.

A little more than half of the students (53%) assessed themselves as experienced in using the Internet and 47% as having intermediate experience. The findings also revealed that 66% of the students normally had access to the Internet on a daily basis and 34% accessed it twice a week. A majority (52%) did so at home, 28% at a café and 20% at friend's home. It seems that schools are a weak source of Internet service provision, as the MoEHE does not allow schools to use their budgets to connect to the Internet (Wahbeh, 2006). Several government schools, however, were connected during short periods of external support from the local community.

Table 2. Characteristics of respondents.

Measure	Items	Students		Teachers	
		No.	%	No.	%
Gender	Male	30	30%	22	44%
	Female	70	70%	38	56%
Age groups	Around 18	100	100%	–	–
	25–34	–	–	32	64%
	35–44	–	–	18	36%
IT competency	Intermediate	47	47%	0	0%
	Experienced	53	53%	50	100%
Frequency of Internet access	Daily	66	66%	50	100%
	Twice a week	34	34%	0	0%
	A week	0	0%	0	0%
Places of access the Internet	Home	52	52%	50	100%
	School	0	0%	5	10%
	Café	28	28%	0	0%
	Friend's home	0	20%	0	0%



The survey data also showed that of the 50 teachers 28 were female and 22 were male. Almost two-thirds (64%) were aged 25–34 years and the remaining 36% were in the range of 35–44. It is expected that older teachers would be less attracted to technology and also have less dependency on it. All teachers had Internet access at home, as the composition of the survey sample was obviously biased toward highly motivated teachers who participated actively in AEN.

In the remainder of the questionnaires, both students and teachers were asked to score a series of statements under three different themes along a Likert scale running from “Strongly disagree” to “Strongly agree”. Average results for each theme are discussed below.

**5.1 Perceived usefulness**

Overall, the respondents had a strongly positive perception of the usefulness of e-learning (Figure 1). Over 80% of students and 72% of teachers agreed that e-learning enhanced accessibility to education. For Palestinians, the most advantageous aspect of e-learning was that it helped them to overcome all the physical and social restrictions and difficulties in travelling to school by facilitating access to education at anytime and from anywhere (24/7 access). As frequently noted by respondents, this flexibility will increase access to education for all learners, who can learn from the delivery of online courses at their own pace without the need to cross the dangerous checkpoints in their daily journey to school. In addition, many students commented that they had sometimes not been able to attend the traditional classrooms due to family commitments, such as where girls had undergone early marriage. One student commented:

The day could end without ever being allowed to pass the checkpoint . . . If I took side roads, I would get to school late and tired . . . just thinking about the return journey . . . many of my classmates dropped out from school . . . Students who have left can benefit from the use of e-learning and get back into the education system.

Respondents were also asked whether they thought that the e-learning style enhanced the quality of learning. Two-thirds of students (66%) and three-quarters (78%) of teachers agreed or strongly agreed that e-learning helps learners to understand the content better than in physical classrooms. From their comments, students appreciated that e-learning provides interactive

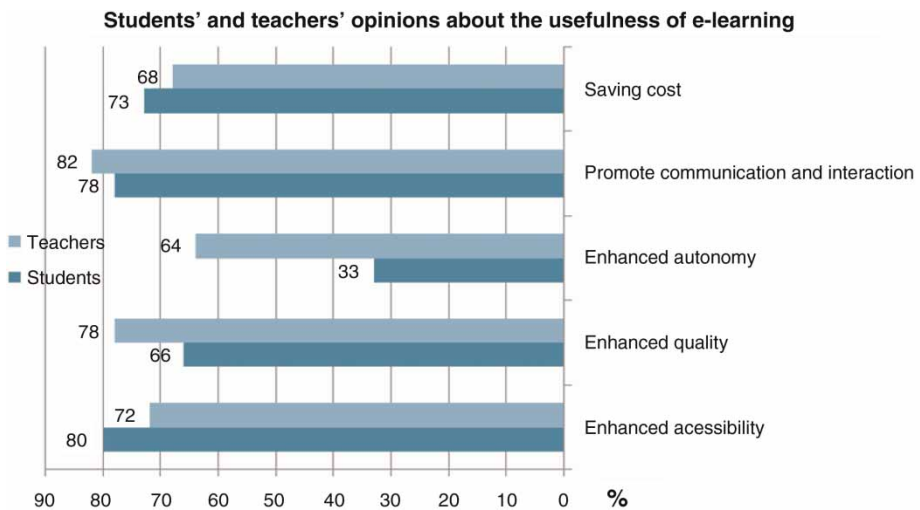


Figure 1. Perceived usefulness.

instructions in a wide range of text, diagrams and images with video and sound, making learning more effective and interesting than via traditional methods. Many of their comments also indicated that teachers in online courses include different activities suited to different learning styles.

A positive feature of e-learning is that it enhances learners' autonomy (Johnston et al., 2005). The views of the students about this were somewhat mixed. Only 33% of respondents agreed and 27% neither agreed nor disagreed, while 40% disagreed. Since Palestinian students are used to traditional methods where the teacher is always in control, perhaps not all students felt that they were able to learn independently and take responsibility for their own learning. For those students, using online courses might lead to a reduction in motivation and engagement in the learning process. Notwithstanding students tended to be unprepared for an active learning role, most teachers (64%) agreed that e-learning enhanced learners' autonomy. One commented that "learners have the opportunity to move from being passive recipients to active seekers of knowledge . . . a change in their studying habits is required". To enable them to become self-motivated, self-reliant and self-managing (Johnston et al., 2005), learners indicated in their comments that they needed appropriate support and guidance from their teachers. Teachers also pointed to the importance of their participation as team members, as facilitators and as coaches, keeping track of students' progress and motivating and stimulating them to participate regularly in the different learning activities.

Another important advantage of using the AEN is promoting communication and interaction (Rozgiene et al., 2008). The majority of students (78%) reported that through synchronous and asynchronous tools offered by the AEN, such as chatting, whiteboards, discussion forums and emails, they could structure online collaborative activities with classmates and with their teachers. Students indicated that feedback and discussion from their peers as well as from their teachers prompted interaction within a group of learners. Likewise, 82% of teachers agreed that they benefited from the exchange of experiences and sharing ideas and best practices through blogs, wikis and videoconferences. This collaboration is important for Palestinian teachers. Among the qualitative data, frequent comments by teachers indicated that they were not well prepared for the new Palestinian curriculum and that the one-shot training given to them was inadequate. They appreciated the advantages of open courseware and the opportunity to work collaboratively with colleagues across the world. In addition, the majority of teachers remarked that rural schools which suffered from the unequal distribution of the best teachers could obtain the same materials and pedagogical skills which were available to urban schools.

Delivering online courses can significantly save costs, according to 73% of students and 68% of teachers, by reducing the need for travel, which is relatively expensive in Palestine due to the movement restrictions. Many respondents also commented that adopting e-learning reduced the dependence on private lessons, which have become widely used in Palestine. This finding indicates that the cost of attending the online courses was acceptable for students. All that is required at the initial stage is a computer and an Internet connection, which are becoming available and affordable to most individuals as a result of the rapid, continuing evolution of ICT.

## 5.2 Self-efficacy

Palestinians, particularly the new generation, can be considered technology-savvy, as ICT pedagogy is integrated into the Palestinian curriculum from grade five. However, although 52% of the students agreed that they had no problem in accessing the portal and logging on, only 40% believed that their existing IT skills were sufficient to use the AEN efficiently (Figure 2). Further, students were asked about their abilities to use e-learning tools such as whiteboards, discussion forums, chat rooms and blogs. They had varied experience of these technologies; only 44% of them felt that it was easy to use these elements. Accordingly, most students

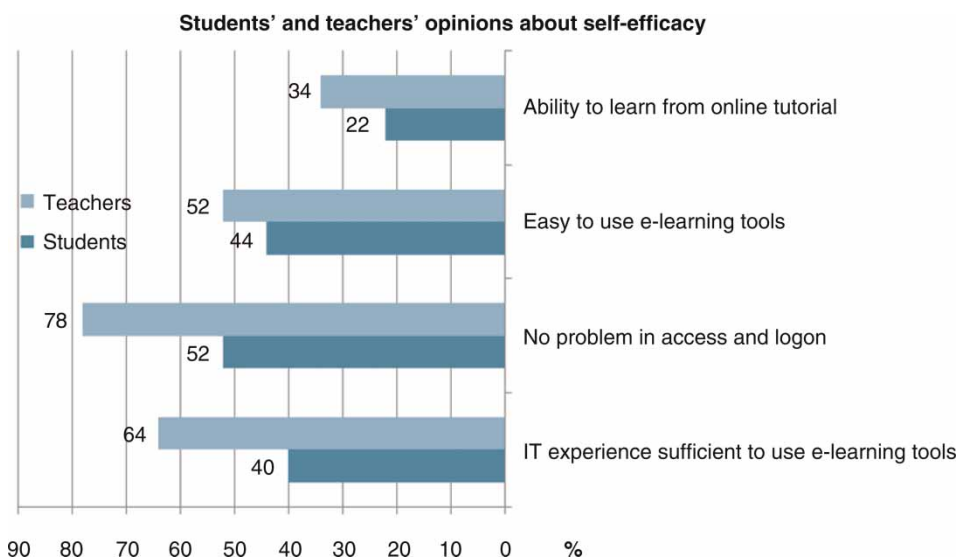


Figure 2. Self-efficacy.

were not completely confident about their ability to use online learning tools. In contrast, 64% of teachers felt confident in teaching online courses, although 48% needed technical support for teaching through e-learning tools. These findings indicate that training programs are needed for teachers who are less efficacious and less comfortable with the digital technologies.

Only 22% of students considered the e-training and online tutorials helpful, whereas 34% of tutors considered them to be of some use. The results suggest that participants might prefer personal coaching rather than online training to familiarize them with the new e-learning technologies, particularly at the initial stage.

### 5.3 Willingness

Sixty-eight percent of students were keen to take online courses as they were relevant to their learning needs (Figure 3). The reason, according to their comments, was the flexibility of online courses, which are not restricted to a specific time or schedule. Students also indicated that their experience was worthwhile and 58% of them would recommend this as a method of study to their friends.

I am sure I will continue to use Alaws... it has enhanced my understanding of certain fundamental issues in chemistry and maths... it's really good... my friends should try it...

Nevertheless, 73% agreed that they preferred the traditional class with face-to-face interaction between teacher and learner, although half (51%) of the students agreed that they would adopt the new paradigm in the future. The results suggest that it is imperative for online courses to be seen as a supplement to the traditional learning methods and not a replacement; therefore, the introduction of blending learning would be more appropriate than a full e-learning methodology.

Three-quarters (76%) of teaching staff would like to use web-based learning tools in their teaching, while 70% indicated that they would recommend this to their colleagues. Furthermore, many teachers commented that teachers should be mandated to engage in online courses in the early stages. Only 32% of tutors were uncertain that they would continue to work as volunteers

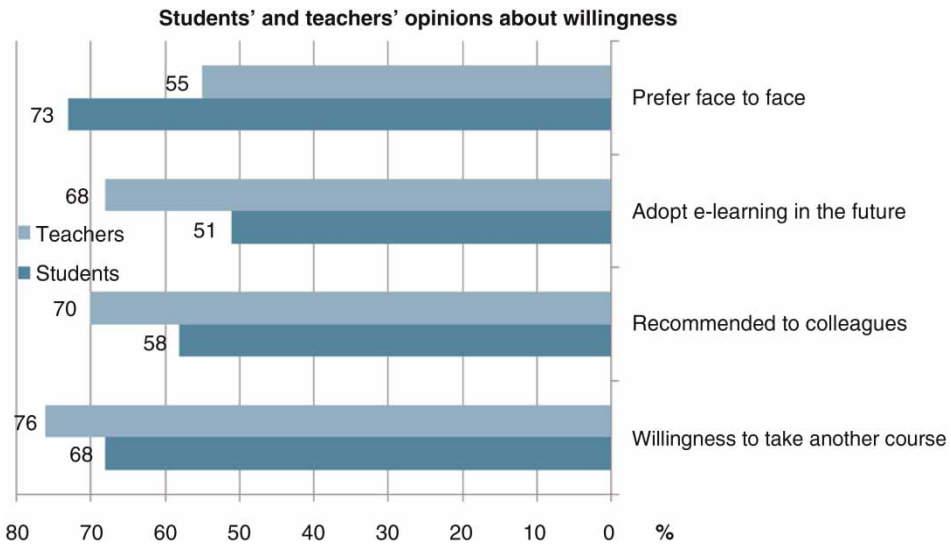


Figure 3. Willingness.

and provide coaching to their colleagues. This result indicates that reluctance to change would be likely to be one of the challenges in moving to the new paradigm.

Next, the teachers were questioned about their intention to adopt e-learning. A majority (62%) agreed or strongly agreed or that they would like to keep up with the new learning paradigm for professional development. Several teachers commented that it was crucial for them to be responsive to the needs of twenty-first century learners. These are considered the early adopters and it cannot be expected that most teachers and students will be quickly convinced by a new learning style; the number of actual users of an innovation will increase over time. Meanwhile, methods and procedures to facilitate wider adoption are required. Such facilitating conditions would include improving infrastructure, capacity building and raising awareness.

#### 5.4 Challenges

There are many challenges to be faced in implementing e-learning from the perspectives of both students and teachers in Palestine and more generally in developing countries. In the present study, 80% of students and 74% of teachers were concerned that they would have technical problems in using online courses. Several students and teachers commented on the physical infrastructure requirements: "easy access to computers, accessible, reliable and affordable bandwidth and a robust network are all important requirements for the successful implementation of e-learning." In Palestine as in many countries, it will be difficult to meet such requirements at present.

Lack of experience of using online learning technologies is also an obstacle to effective participation in e-learning, the ultimate success of which will depend on both students and teachers becoming confident and capable (Hadad, 2007). Around three-quarters of students and teachers (75% and 72%, respectively,) indicated that they needed appropriate training in using ICT-based learning components such as multimedia, chat-room, wikis and blogs, since their Internet and computer skills or experience were insufficient to use e-learning elements effectively. Some teachers also commented on their need for training in instructional design in order to create effective and interactive contents.

Even more importantly, 76% of teachers referred specifically to the time needed to prepare instructional materials and to manage the learning process in digital formats. Several teachers commented on the workload issue; for example, "I should regularly check the online communication tools for new postings, replying to students' questions and encouraging them to participate actively".

While many students may have access to e-learning facilities, they tend to use them for entertainment rather than for learning (Appana, 2008). As many as 70% of students and 78% of teachers expressed concerns that students would be distracted from concentrating on online courses. One said, "My parents hesitated a lot before they bought me the Internet. What worried them most was chatting". Another student commented that during virtual classroom sessions he would sometimes start to view other websites and listen to music, forgetting about his class. Time management skills are extremely important and a challenge in this endeavor is how to enhance learners' motivation for self-study.

Respondents tended to agree to the overall that another obstacle to using e-learning is language. Seventy-nine percent of students and 66% of teachers reported feeling confused by English ICT terminology and expressed a preference for Arabic. This finding is congruent with studies in other countries; for example, the UNESCO (2004) reports a high demand in Thailand for adequate Thai online courseware.

## 6. Conclusion

This study has demonstrated that the specific and unique situation in Palestine leads Palestinians to perceive online courses as advantageous and therefore they have a positive attitude toward adopting e-learning. However, the analysis of the quantitative data indicates that neither learners nor teachers are ready yet. There are also many challenges to the implementation of e-learning in Palestine, including the digital divide and technical limitations of the network, lack of e-learning skills, lack of autonomy, poor time management, workload pressure and language. Moreover, the open comments of respondents were confirmed that there were a number of issues that would need to be addressed. The most significant issues being related to institutional and procedural support. Policy reforms, accompanied by regulatory and institutional changes, provide a framework for the successful implementation of online education (Watson et al., 2004). Therefore, best practices need to be developed and implemented by the MoEHE.

Since the decision-makers in MoEHE are still unfamiliar with the emergence of e-learning model, there is a need to start by creating awareness among the decision-makers to bring their attention to the potential of this model to improve the learning process. Political support is needed in order to provide a solid, enforceable and accountable framework for the implementation of the e-learning approach. Hence, changes of attitude at the top management level are crucial to facilitate a high degree of teaching staff involvement.

Attitude toward web-based learning initiatives have also an influence on teaching staff involvement (Breen, 2001). Although Palestinians have perceived the usefulness of e-learning, it is expected that not all teaching staffs have been able to embrace the e-learning initiative immediately. There are many who have a preference for face-to-face teaching methods especially those with limited IT skills. It should be emphasized that the e-learning paradigm is not simply being used by students and teachers as a replacement for traditional face-to-face teaching methods, but it is recognized to be valuable as a supplement, to enhance the learning process. This finding is consistent with prior studies (Aydın & Tasci, 2005; So & Swatman, 2006; Watkins, Leigh, & Triner, 2004). The MoEHE should also take steps to change that perception, such as developing IT literacy training programs, releasing workload and revising current policies and regulations to support the learning process in digital format.

Raising awareness and disseminating a culture and policies among the educationists and students to change their attitudes toward e-learning should be also addressed. Special attention should be paid to the motivated and committed teachers and active students with experience of the AEN. This group may play an important referral role in encouraging their students and colleagues to use e-learning effectively. One of the issues that emerge from the findings of this study is also the mandatory role of MoEHE in promoting e-learning once it has been implemented. The MoEHE should mandate teachers to engage in e-learning implementation in the early stages. This supports the view of Thowfeek and Hussin (2008), who suggested that the mandatory use of e-learning applications has a significant influence on promoting e-learning.

It may be doubted that e-learning will create equal access to the teaching learning process. In rural areas, where Internet connection tends to be limited, this can cause a particular problem for e-learning approach referred to as the “digital divide”. The MoEHE will therefore need to set up a clear plan and undertake critical assessments of ICT infrastructure in schools, in order to bridge the digital divide between schools in urban and rural areas. Capital investment is anticipated to be high at the early stage; there will need to be substantial expenditure on hardware and training programs. This is a challenge for the future; in the meantime, however, forging links with international and local communities and maintaining a dialogue with multiple groups will be necessary to assure financial support for improving ICT infrastructure and capacity building.

To conclude, transformation to an e-learning approach requires a holistic approach to be considered. Socio-technical and organizational factors are crucial to its successful implementation. However, emphasis should be placed on the implementation process rather than technology. Accessibility, connectivity and the digital divide are chronological issues that can be improved over time by rapid advances in technology.

## Notes

1. Internet World Stats: <http://www.internetworldstats.com/stats5.htm>.
2. Fatah and Hamas political parties.
3. [www.alaws2006.com/](http://www.alaws2006.com/).
4. [www.wiziq.com](http://www.wiziq.com).

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