Adopting "The International Society for Technology in Education" Standards on AOU e-Learning Environment

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Abstract: **The new technology has a huge revolution on almost all areas on our life including learning and education. Furthermore, it raised the need to have sets of standards and regulations to guide the best practice of such technology in many eras in general and in education in specific. These standards are supposed to employ the use of technology in teaching, face to face learning, and e-learning. One of the most pioneer standards in education is the International Society for Technology in Education; ISTE for short. ISTE standards were set to improve the learning skills which consist of many skills such as thinking skills, problem solving, critical thinking, and creativity. One aim of ISTE standards is to prepare students for the new era of using technology in education, using the Learning Management Systems (LMS) as a student-centered learning environments, using the digital technologies in learning, and encouraging the use of digital professional models for planning, designing, and creating and e-learning environment. Arab Open University; AOU for short; is considered as the first and leading educational institutes in the Arab world of utilizing e-learning and blinded learning as the main core of teaching. This paper investigates adopting the ISTE standards in the learning environment at AOU in general. Also it focuses on the advantages and the need for these standards to deliver optimal learning process.**

I. INTRODUCTION

Nowadays, technology became the core of all phases of our daily practices at home, at work, and in our social lives. We have to utilize the technology to be a part of our educational system. Utilizing the technology can create a powerful e-learning environment by enhancing the content presentation and also enhance the learning process with the available variety of tools and digital skills such as the assessment tools, communication skills, and security issues. Using the technology in the learning process will improve student learning and enhance the learning process. Digital assessments are very essential to use information that can be used to continuously improve the learning and education systems [1, 9].

The International Society for Technology in Education; ISTE; is an association for education leaders and educators dedicated to empower member learners and educators all over the world. One of the most contributions of ISTE is the developing of a set of Standards with the contribution of pioneered educators to enrich the new era of education by using the digital technology. There is a wide international acknowledgment of ISTE Standards by implementing their standards in teaching, learning, and the use of digital technology in education. The ISTE characterized their standards into many specialization including: "ISTE Standards for Students, ISTE Standards for Teachers, ISTE Standards for Administrators, ISTE Standards for Coaches, and ISTE Standards for Computer Science Teachers" [2, 7, 8]. Educational institutes must implement these standards as a complete package to enhance their educational system.

Arab Open University; AOU for short; is the first university to adopt e-learning as a core of its teaching process in the Middle East area. It offers online material for all touted classes through the learning management system used since it was founded in 2002. Until now, AOU has branches eight different countries in the Middle East area,

Also it has an affiliation agreement with the United Kingdom Open University; UKOU; and based on this agreement we run the UKOU courses and programs to guarantee the good quality of its educational programs [3, 6].

The first e-learning system used by AOU was FirstClass offered by UKOU in 2002, and then we adopt Moodle to be the official Learning Management System of AOU. Moodle is an open source learning management system which is broadly used by thousands of educational institutes all over the world. Moodle has many templates to present any course content in a proper way. Also Moodle is very rich with many tools and activities that might be needed while delivering the course such as Forums, Chat Rooms, Instant Messages, Workshops, Grade Book, Online exams, assignments, etc. [4].

In this paper we will investigate the adopting of ISTE standards in the Arab Open university e-learning environment. We will focus on the adaptation of such standards from the technological point of view. The technological infrastructure and the readiness of instructors and students to use such technology in the learning process will be also presented. Furthermore, the essential requirements to build a successful model are discussed in details.

Section two introduces ISTE Standards, section three presents AOU e-learning environment, we present a case study in section four, and final section five concludes this paper.

II. ISTE STANDARDS.

This section introduces the ISTE Standards for students and teachers in brief; full details of these standards can be obtained from ISTE official website http://www.iste.org/standards. The goal of bring in these standards is to be familiar on them and then to investigate the adopting of them within the AOU e-learning environment in the subsequent sections of the paper [2].

A. ISTE Standards for Students Resources:

As stated about ISTE standards has many categories, one of these categories is focused on students since they are the center of and learning process. The main factors are [2]:

1. Creativity and Innovation: It measures the ability of the students to use the digital technology and employ their knowledge to think creatively and show innovative outcomes.

2. Communication and Collaboration: It measures the ability of the students to use the digital technology and communication tools and digital media to collaborate and communicate with other students and teachers, considering that there are a set of synchronous and asynchronous communication tools.

3. Research and Information Confidence: It measures the ability of the students to use the digital technology to collect data, produce information, and evaluate results.

4. Decision Making and Problem Solving: It measures the student capabilities of critical thinking aspects, management, research, and problem solving.

5. Digital Citizenship: It measures the ability of the students on the proper behavior while using of the digital technology, students must be aware of all ethical and legal issues of using the technology.

6. Technology Concepts: It measures the ability of the students to understand concepts, operations, and structures of the digital technology

B. ISTE Standards for Teachers Resources:

The second category is focused on teachers since they are the leaders of any learning process. The main factors are [2]:

1. Motivate Student's Learning and Creativity: It measures the teacher capabilities of teaching, technology, and knowledge to employ and facilitate them to direct and support student's knowledge and creativity, and also the produce an innovated outcomes.

2. Design and Enhance Digital Learning Experiences: It measures teacher capabilities of producing a complete cycle of learning content, this will require skills and knowledge of designing, developing, using proper tools, and evaluating the needed outcomes.

3. Model Digital Work and E-learning: It measures the ability of the teacher to use the digital technology, communication tools, skills, and digital processes in a professional level.

4. Encourage Digital Citizenship and Responsibility: It measures the capability of a teacher of using proper behavior while they are using the digital technology, teachers must be aware of the new digital culture and all ethical, social, and legal responsibilities of using the technology.

5. Engage in Professional Development: It measures the professional improvement of teachers. A teacher must maintain a continuous improvement of his skills of digital technology and how to employ it in the learning process.

I think that all teachers nowadays must be active in using the digital technology in order to maintain professional capabilities. They should keep learning how to use the digital technology socially and also in their professional learning system [5].

III. AOU E-Learning Environment

The official learning management system used by AOU is Moodle, which is an open source learning management system which is broadly used by thousands of educational institutes all over the world. AOU made a lot of enhancement over Moodle to fulfill the regulations and instructions used in the university. Moodle has many templates to present course content based on the specification and the nature of the course. Also Moodle is very rich with many attractive tools and activities that might be needed while delivering the course such as Forums, Chat Rooms, Instant Messages, Workshops, Grade Book, Online exams, assignments, etc. These activities can be performed on different levels such as section, course, department, or college level. [4].

ISTE standards for student's resources are applied and adopted in the AOU e-learning environment. Creativity and Innovation is the first element of the standards. Concerning AOU students, we can state the following:

1. Students create their own work either by sole activities or by team work using the technology through forums and sharing thoughts and ideas.

2. Express the learned knowledge by presenting some related ideas.

3. Do related projects and some new programs and models.

The second element is about communication and collaboration, we case state the following:

1. Students use Moodle to communicate and interact with each other and also to communication with their teachers. They use forums, messages, voice mail, and direct chat rooms.

2. They exchange ideas and help each other thought these technological communication tools.

3. They create dedicated communication environments to do a team work on assigned projects

The third element is referring research and information fluency. AOU students are practicing the following activities:

1- They plan strategies to guide inquiry specially in their final year project.

2- They organize, analyze, evaluate, search and use information from a variety of sources and media. AOU has a huge digital library which has a variety of e-learning recourses where student can access it via the internet from anywhere any time.

3- They write a report for evey course they take. There is always new information that they need present in this report and also they need to state the resources of these information.

The fourth element is about decision making and problem solving. AOU Students practice the following:

1- Many assignments are set to measure student capabilities of identify, define, and analysis a specific task.

2- Projects are designed to let students plan and manage activities to develop their projects.

3- They are asked to select the proper solution for assigned problems based on the collect and analyze data. At the end, it is their decision to make from a variety of alternative subjects.

The fifth element is about digital citizenship. Students need to show that they are belonging to the digital society:

1- They practice the digital technology and information in adequate, responsible, and legal way.

2- Their ethical, thoughts, and behavior of using digital technology which supports learning and creativity.

3- They must present their capabilities and leadership for digital citizenship.

Finally, the sixth element is about technology operations and concepts. AOU student cannot process within the university unless they are fully operational the technological system used in general and Moodle in specific including:

1- Understand and use technology systems including Moodle and online Student Information System

2- Use applications effectively. All student activities are required to be online via Moodle.

3- They need to test and faults of assigned online activities and systems.

4- ITC students are transforming some system to be adopted on mobile web technology.

The second important standard to adopt is ISTE standards for teacher's resources. The first element of the standards is to motivate Student learning and creativity, according to teacher of AOU, we can declare the following:

1- Teachers support students' creativity and encourage them to practice critical thinking.

2- Teachers must be engaged with students via many digital tools to train them how to solve problems and obtain more resources.

3- Teachers train students to use activity tools to expose and explain students' understanding, critical thinking, and developing.

4- Moodle is equipped with tools where teachers and students are participants in the learning process within the learning management system environment.

The second element is about design and enhances digital learning experiences. AOU teachers are practicing the following:

1- They develop many e-learning activities and assignments within the LMS by creating adequate digital tools to encourage the students to be more involved and more experienced in the digital learning.

2- They use the official learning management system Moodle that contains many individual activities and tools. These activities and tools encourage students to be more active and also to manage their own e-learning procedures.

3- Moodle allows teachers to customize and personalize e-learning activities for their students.

4- Moodle support teachers with multiple types of assessments to assist their students formative and informative.

The third element is about model digital work and e-learning. AOU teachers have the proper knowledge and skills to:

1- Demonstrate confidence in technology systems

2- Work together with students and colleagues using digital tools and resources to support students.

3- Communicate effectively with students and colleagues using a variety of digital age media, specifically via Moodle.

4- Teachers are using many electronic tools within Moodle to support students with the needed information and feedback on the course content and also on the submitted assignments.

The fourth element is to encourage digital citizenship and responsibility. AOU teachers understand their responsibilities in evolving digital culture in their professional practices:

1- They are aware of ethical and legal use of digital information and technology

2- Moodle is designed in a way where learners are learner-centered. AOU teachers are aware of such strategies.

3- They are trained professionally on how to use the technology in all aspects, the net-etiquette and behavior skills of using the net and digital media are vital.

The fifth element is referring to Engaging in Professional Growth and Leadership; AOU teachers continuously improve their professional skills and they are considered pioneers in the e-technology professional practice in the Arab world:

1- They have been practicing the use of technology to interact with the students and deliver learning material since e-learning platform is the core of AOU learning process.

2- They contribute to support better professional behavior in local communities and institutes that are new in this area.

IV- CASE STUDY

In this section, we present some activities and experiences which are being used by our students while practicing the digital technology in their first year here at AOU. Each activity represents an example of one or more elements of ISTE student standards, these elements are numbered at the end of each activity within parentheses:

1. Design and create an online journal via a journal tool in Moodle in details to show the understanding of a related course material and content. (1, 2, 3)

2. Think, Design, Write, and Test a digital program or report to show the understanding of knowledge and skills related to course learning outcomes. (1, 4)

3. Use electronic tools within Moodle that can be adjusted and timed based on the student's progress on the course materials to measure the student understanding effectively. (3, 6)

4. Perform online experiments and trainings related to course materials and measure the student's critical thinking progress. (1, 4)

5. Study and come to a decision on how we can employ the new technology to present better e-learning environment and determine the limitations. (4, 5, 6)

6. Measure student's capabilities of finding solutions to course related problems and plan and perform related projects. (1, 2, 3, 4)

7. Consider the Web Accessibility Initiative; WAI; requirements and rules while designing a website. (1, 5)

8. Measure the capability of setting all hardware and software requirements to install and operate the learning management system Moodle and debug and error while configuring the system. (4, 6)

9. Consider all legal and ethical issues while using the technology and the web; this includes the copy rights and referencing issues. (3, 5)

V. CONCLUSION

In this paper, we introduced ISTE standards which aim to guarantee an optimal use of digital technology in e-learning and teaching. The main goal of using the ISTE Standards is to improve the quality of teaching and enhance the thinking skills and creativity for both students and teacher, also preparing students for the new era of digital learning. The paper discussed adopting and implementing ISTE Standards for both teachers and students in the Arab Open University e-learning environment. A case study of AOU adaptation of ISTE standards is also presented.

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