

# Adapting Learning Environment Based on ISTE Standards for Palestinian Curriculum Teaching

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**Abstract** *The study aimed to adapt learning environments based on ISTE standards for Palestinian curriculum teaching. To answer the questions of the study, the researcher adopted a descriptive approach, He identified the ISTE standards and analyzed the content of an instructional technology course according to the ISTE standards for teaching Palestinian curriculum. He then designed the learning environment based on these standards. The study used a content analysis tool to analyze and design the learning environment based on ISTE standards. It recommended integrating ISTE standards into the Palestinian curriculum design.*

**Keywords:** *Adapting learning environment, ISTE standards, Palestinian curriculum*

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## I. Introduction

Adaptive e-learning environments need ontology-based recommenders, which are software agents that recommend actions based on the learner's past experiences. Tarus, Niu, and Mustafa (2018) stressed that even though learners have a wide range of abilities, preferences, learning styles and proficiency levels, recommender systems rely on students' ratings of preferences in a traditional e-learning environment. Thus, ontology-based recommenders facilitate customized learning through individualizing the learner profile to provide relevant, required materials and activities. Apparently, it is difficult find an active and collaborative environment that doesn't directly reflect the traditional and passive ways of teaching. Clearly, small and portable electronics allow students to use self-guided programs to become more independent learners. Rather than relying on being physically connected to a teacher to learn, it is possible to connect and learn digitally. Thus, freeing students from the traditional classroom (Moehring, 2012). Developing new ideas, strategies, and knowledge requires a stimulating environment and connections with others.

To develop a learning environment, exact standards must be established. ISTE Standards provide clear guidelines for skills and knowledge so that educators, students, and leaders can be supported. We must move away from the factory model. These are not the typical boxes educators must check. They give a system to reconsidering training, adjusting to a continually changing mechanical scene, and planning understudies to enter an inexorably worldwide economy. (www.iste.org, 2017).

Understudies today need admittance to the advanced apparatuses and media-rich assets that will assist them with investigating, comprehend, and articulate their thoughts on the planet. Instructors need admittance to the devices and assets to impart information and practice to different experts. Moreover, they need to associate with specialists in their field, and interface with their students' families and networks (21st Century Curriculum and Instruction).

The most ideal way to learn is to interface with different instructors at up close and personal meetings, like the ISTE Conference and Expo, or inside web-based networks. These are incredible spots to learn at the school, territorial, public or worldwide level about ways of utilizing new innovations to broaden, and improve understudy learning. They are likewise utilized for instructors, who can impart their insight to other people. Likewise, it assists them with contributing in the viability, essentialness and self-restoration of their calling. (Crompton, 2014).

According of Palestinian Ministry of Education (2016), the multiple developments that have occurred in the various fields of life, make the development of national curricula an imperative to guide future generations. Based on the results, the most important justifications for developing the curriculum are as follows:

1. The need to update the current curricula adopted since the year (2000).
2. The need to keep pace with the development of knowledge and developments.
3. The future needs of the individual and society.

According to the seventh basis of the Palestinian curriculum document (2016) entitled "Technology and Communication in the Learning Process", the curriculum should take into account the use of technology inside and outside the classroom. Also, it should provide supportive digital educational content that contributes to promoting self-learning, and the search for knowledge, and the formation of active learning communities.

In this paper, it adjusts a learning climate model which comprises of five stages is proposed in view of ISTE norms for understudies and for instructors. The five periods of the ADDIE Model are: Analysis, Design, Development, Implementation, and Evaluation.

## **II. The Problem statement**

The main problem in this research is how to adapt learning environment based on ISTE standards for Palestinian curriculum teaching.

## **III. The Objectives of Study**

1. Identify the ISTE standards, its conditions and activities.
2. Adapt learning environment based on ISTE standard for Palestinian curriculum.

## **IV. Theoretical Framework**

The ISTE Standards consist of five sets of standards and provide a framework for amplifying, or even transforming digital age learning, teaching and leading.

The ISTE Standards comprise of five arrangements of norms and give a system to enhancing, or in any event, or even transforming digital age learning, teaching and leading. The ISTE Standards include (Students, Teachers, Administrators, Coaches, and Computer Science Educators).

The ISTE Standards are intended to serve the field for 5-10 years as a diagram for tech reception and execution. However, training innovation moves rapidly, so the ISTE Standards should be revived occasionally to mirror the current and coming condition of schooling. In 2016, ISTE refreshed the norms for understudies, and started an invigorate of the ISTE Standards for educators, which were delivered in 2017. The manager, mentor and software engineering instructor principles were refreshed in the new years.

### **Learning environment**

Learning environment alludes to the assorted actual areas, settings, and societies in which understudies learn. Since understudies might learn in a wide assortment of settings, for example, outside-of-school areas and open air conditions. The term is frequently utilized as a more exact or favored option in contrast to study hall. This has more restricted and customary meanings a room with lines of work areas and a blackboard.

Learning environment additionally incorporates the way of life of an everyday schedule its managing ethos and qualities. This incorporates how people connect with and treat each other. Furthermore, it remembers the ways for which educators might put together an instructive setting to work with learning. These may comprise leading classes in significant regular environments, gathering work areas in explicit ways, adorning the dividers with learning materials, or using sound, visual, and computerized advancements. Moreover, the characteristics and qualities of a learning not entirely settled by a wide assortment of elements, school arrangements, administration structures, and different elements may likewise be viewed as components of a "learning climate." Educators may likewise contend that learning conditions have both an immediate and backhanded impact on understudy picking up, remembering their commitment for what is being instructed, their inspiration to learn, and their feeling of prosperity, having a place, and individual security (Glossary, 2021).

The e-learning environment gives open doors to genuine correspondence in a credible learning climate. The crowd of the composing isn't restricted to the educator yet stretches out to cohorts and others past the homeroom, including a worldwide crowd. Hence, e-learning climate raises a consciousness of having a creation and a readership. The writers distribute thoughts, contemplations, occasions and data, and perusers are permitted to give input straightforwardly to the writers' posts (Oravec, 2002; Ward, 2004; Kavaliauskieno, Anusien and Mažeikien, 2006; Du and Wagner, 2007; Benson and Reyman, 2009)

For the importance of learning environment, the researcher decided to adapt learning environment according to Palestinian curriculum.

### **Adapting learning environment:**

The plan of a versatile e-learning climate should consider the favored learning style. Subsequently, this customizes the profile of every student in view of his inclinations. Likewise, the peculiarity of the learning style reference of the student conduce to the pressing need to redo the learning system in view of various assets to meet such extraordinary necessities of every student. Any other way, learning can be ineffectual and useless in

the event that it doesn't take care of the favored learning style of an understudy (Miklovíková and Malčík, 2016).

Immediately, it is important to distinguish the real degree of execution of the students, and afterward to fabricate and grouping the learning materials appropriately. In particular, it is expected to adjust the showing strategies and the assignments in consonance with the learning style inclinations of each. (Ibrahim and Abdel Alim, 2019).

Whittenburg (2011) attempted to coordinate such thoughts together making sense of that versatile e-learning is a successful climate to customize training. This is to address individual requirements where every student ought to focus on a remarkable adjusted task in view of his/her specific necessities, perspectives, and aptitudes. Such climate incorporates understudy displaying servers that incorporate inductions. Moreover, it has itemized data about a student, for example, the degree of information, favored learning style, full of feeling attributes, and even objectives and plans. The servers likewise can screen every student's presentation on an assignment, for example, distinguishing the time taken and the mix-ups submitted. Furthermore, understudy models give the motivations to this presentation, hence, it can adjust the criticism for every one. Thusly, improving understudy models with explained information on mental and emotional qualities of the student prompts viable custom-made guidance altered criticism and inherent inspiration.

Education 4.0 presented new standards for fostering our educating. One of these standards is applying AI in instruction. Holmes (2019), and Lu and Harris (2018) contend that sometimes. Artificial intelligence fills roles autonomously of instructors, while in others it increases educating abilities. They show a few uses of AI based instruction innovation to incorporate the accompanying:

- Coaching: AI programs ordinarily alluded to as Intelligent Tutoring Systems (ITS) or versatile guides connect with understudies in exchange, answer questions, and give criticism.
- Customizing Learning: ITS and versatile coaches tailor learning material, speed, grouping, and trouble to every understudy's requirement. Man-made intelligence can likewise offer help for extraordinary necessities understudies, for instance by training mentally unbalanced youngsters to distinguish looks.

#### **Instructional design (ID):**

ID might be characterized as utilizing a methodical way to deal with take care of an informative issue. The ID interaction starts by distinguishing the exhibition issue of students. Then, at that point, this decides whether guidance is the fitting arrangement. Answers for an educational issue join the utilization of innovation and learning hypotheses. The efficient methodology comprises of educational framework plan (ISD) models, like ADDIE, ASSURE, and the Dick and Carey model. (Davis, 2013)

#### **Types of web -based learning experiences: (O'Neil &Perez, 2013)**

- 1- Formal course or module of distance learning\_ objective centered and completely conveyed through an appropriated network. Spot and season of guidance somewhat unconstrained.
- 2- Blended course \_ objective centered, center informative conveyance and collaborations is shared by live and PC upheld guidance. Some simultaneous guidance required.
- 3- Technology-upheld courses \_ course materials, tasks, visit and different elements are accessible to increase a conventional live educator, however the equilibrium is on live guidance.
- 4- Technology-advanced conditions practice open doors or recreations especially for subtasks are given by the web.
- 5- Discretionary web movement improvement or different exercises supporting PC education abilities.
- 6- Tools use discovering that happens connected with the utilization of intuitive apparatuses including search, record readiness, and calculation sheet and information base plan and cooperative work.
- 7- Focused games and reproduction's objective centered or objective developing with a bunch of learning assumptions including content, technique, and constancy.
- 8- Exploratory games and reenactments objectives engaged, developing, and flighty learnings happen; strategies, requirements, and cycles.
- 9- Domain explicit accidental learning pertinent to learning rules and awards of utilizing (generally) business destinations.

#### **Methodology**

The researcher followed the descriptive approach, where he analyzed the content of Instructional technology course based on ISTE standards, the analysis was done using ADDIE model.

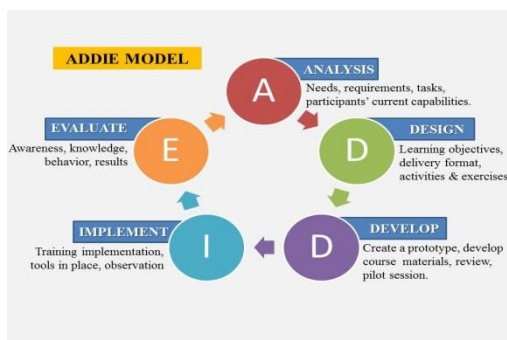
#### **The ADDIE Model**

There are in excess of 100 distinct educational framework configuration models. However, practically all depend on the conventional "ADDIE" model, which represents Analysis, Design, Development, Implementation, and Evaluation (outlined in the figure beneath). Each progression has a result that takes care of

the ensuing advance; Analysis, Design, Development, Implementation, Evaluation. During investigation, the creator fosters an unmistakable comprehension of the "holes" between the ideal results or ways of behaving, and the crowd's current information and abilities. The plan stage archives explicit learning goals, evaluation instruments, activities, and content. The real production of learning materials is finished in the advancement stage. During execution, these materials are conveyed or disseminated to the understudy bunch. After conveyance, the adequacy of the preparation materials is assessed. (Kruse, 2002).

Morrison (2010) characterizes ADDIE as an informative frameworks plan (ISD) system that numerous educational designer and preparing designers use to foster courses. The name is initialism for the five stages it characterizes for building preparing and execution support apparatuses:

- Analysis
- Design
- Development
- Implementation
- Evaluation.



**Analysis phase**





This is the first step in ADDIE model; where the instructional problem is identified along with learner characteristics, and learning objectives is determined, in this phase the researcher done the following steps:


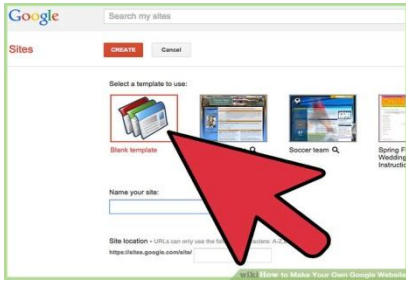

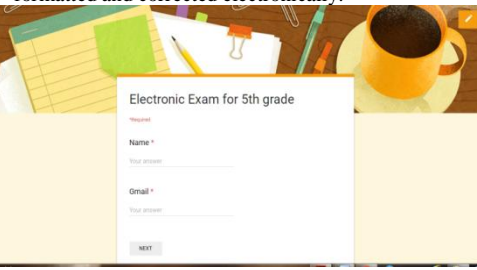
- 1- Defining the ISTE standards 2016, and defining standards for educators and students.
- 2- Defining the learning objectives and skills necessary, the researcher adopted the google site skills to design the learning environment.
- 3- Analyzing the content of instructional technology-practical course based on ISTE standards.


**V. Design phase**

This is the second step in ADDIE model, where a diagram of educational procedures is made and learning exercises and not set in stone. In this stage, the scientist planned the learning climate in view of ISTE guidelines, as displayed below:


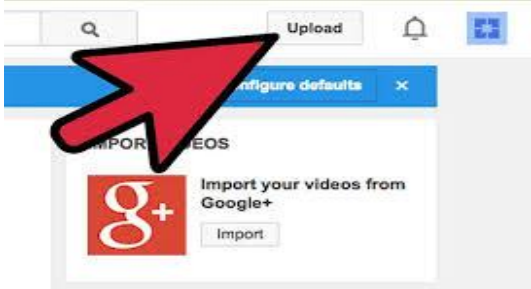
**ISTE Standards for Students:**


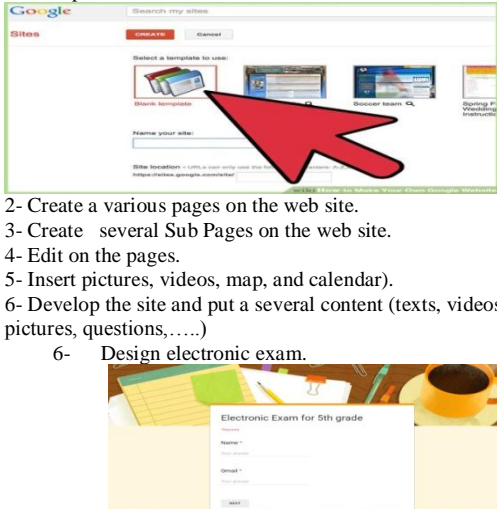
#	Standard	Skill	Activity	The used tool
1.	<b>Empowered learner</b>	- Create and use Gmail account.	The learner creates his own E- mail. 	A website that explains the steps to create a Gmail.
2.	<b>Digital Citizen</b>	Dealing with E-mail Learn about Google Apps. Search and browse the web	The learner opens the E-mail, send and receive E-mails and upload and download files. The student knows that Gmail is the key login for all Google applications and some applications that could be useful in the education process including (Google Drive, google sites, YouTube, Hangouts ...)    Looking for using different search engines to upload and download files from	Videos from different websites

				
3.	<p><b>Knowledge Constructor</b></p>	<p>Produces its own site on google site. Creates various pages on Google Site Format pages</p>	<p>The learner creates their own site on Google site, by following the steps explained in educational videos and then designs a variety of pages within the site as type (Web, announcements, list, and file cabinet), then puts information and content that you want inside the pages.</p>  <p>After creating the pages, he formats these pages and arrange them appropriately, change color, appearance, size and background.</p>	<p>Educational videos are previously prepared available on YouTube and on the Islamic University Moodle site.</p>
4.	<p><b>Innovative Designer</b></p>	<p>Design your E-portfolio.</p>	<p>After follow the previous steps, now the learner can design its own website titled E-portfolio. Puts all the required files in the dedicated place and add new ideas on the site to appear like an educational blog.</p> 	<p>Educational videos are previously Prepared available on YouTube And on the Islamic University Moodle site.</p>
5.	<p><b>Computational Thinker</b></p>	<p>Make of an electronic test. Correct the test</p>	<p>After website designed, the learner makes a model for electronic exam as type (multiple choices, true and false), formatted and corrected electronically.</p> 	<p>Educational videos are previously Prepared available on YouTube And on the Islamic University Moodle site.</p>

6.	<b>Creative Communicator</b>	Publish your website via electronic media	<p>- The learner publishes the site on electronic media - invite other students and those interested in seeing the content.</p> 	Educational sites available on the Internet.
7.	<b>Global Collaborator</b>	Cooperation and exchange ideas and experiences electronically	After the publication of the site was done, cooperation with other learners from diverse cultures and backgrounds to express their thoughts and comments on the content, and possibility of modification and development on the site.	Websites. Electronic media. Social media.

**ISTE standard for computer science educator:**

Standard	skill	activity	The used tool
1	<b>Knowledge of content</b>  All google site skills	<p>-The science educator knows the content to be taught and understands well For example: teach the student's E-content design</p>  <p>skills using Google site, -the educator should know and understand all the required skills and start a good planning to the lesson and prepare teaching digital aids and identify the appropriate strategies, and identify assessment methods.</p>	Educational sites
2	<b>Effective teaching and learning strategies</b>  All google site skills	<p>-The educator uses new strategies within active learning that based on internet like flipped class room strategy. -for example the teacher explains website design skills, the steps is: 1- Designs educational videos to explain all Google website skills. 2- Up load the videos on YouTube site.</p> 	<ul style="list-style-type: none"> <li>- Camtasia program to design the videos.</li> <li>- You tube site.</li> <li>- Educational sites</li> </ul>

			 <p>3- Ask the learner to see the part that covers the first skill and performs the required skills and continue to all skills.</p> <p>4- The teacher follows up student's activities and determines the extent of their understanding of the lesson.</p> <p>5- Create and implement multiple forms of assessments.</p>	
3	<b>Effective learning environments</b>	All google site skills	<p>-The educator provides students with an effective learning environment through:</p> <ol style="list-style-type: none"> <li>1- Providing each learner with a personal computer with available online network.</li> <li>2- Online electronic communication.</li> <li>3- Online courses.</li> <li>4- Online assessments.</li> <li>5- Online feedback.</li> </ol>	An effective site designed by the educator
4	<b>Effective professional knowledge and skills</b>	All google site skills	<p>- The educator allows the learner to apply the knowledge and professional skills through:</p> <ol style="list-style-type: none"> <li>1- Create his own site (blog) and put all the scientific content to be explained.</li> <li>2- Create a various pages on the web site.</li> <li>3- Create several Sub Pages on the web site.</li> <li>4- Edit on the pages.</li> <li>5- Insert pictures, videos, map, and calendar).</li> <li>6- Develop the site and put a several content (texts, videos, pictures, questions,.....)</li> <li>6- Design electronic exam.</li> </ol> 	An effective site designed by the educator

**Development phase**

This is the third step in ADDIE model, in this stage, we will fabricate our learning content, learning tasks, and appraisal. Advances ought to be recognized to improve our growth opportunity.

**Implementation phase**

This is the fourth step in ADDIE model, the execution stage incorporates the testing of models where preparing for the teacher happens followed by students partaking in the guidance, This stage incorporates Palestinian educational program from (k-1) to (k-12).

**Evaluation phase**

This is the last advance in ADDIE model, appraisal of program planned to guarantee the preparation and content accomplished the learning targets, Evaluation comprises of two sections: developmental and summative. Developmental assessment is an estimation of learning results during the guidance cycle, and summative assessment estimation of learning results after guidance is the last stage, the specialist made an approval for every past advance.

## VI. Conclusion

Based on data analysis of the content of this study and designing learning environment based on ISTE standards, the following conclusions were reached:

1. Palestinian curriculum contains activities which suitable for learning Adaptation environments.
2. Adopting the ISTE standards in designing learning environments is suitable for Palestinian curriculum Adaptation.
3. The ISTE Standards support educators, students with clear guidelines for the skills and knowledge necessary

### Recommendations:

the light of results of the study, the accompanying suggestions are advertised:

1. Hold instructional classes for understudies and educators in colleges to present ISTE principles, and persuade instructors and understudies to embrace these norms.
2. Coordinate ISTE principles in scholastic readiness programs for instructors of staff of training.
3. Upgrade educators' consciousness of the significance of using computerized apparatuses and virtual learning conditions in instructing.
4. Concentrate on the execution of ISTE norms in scholarly projects, schools and colleges overall.
5. Make activity research for adaption Palestinian educational plan.

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