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The Reality of Implementing the Educational Technology Teacher Preparation Program at Al-Aqsa University in Accordance with the International Society for Technology in Education (ISTE)

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Abstract

Purpose - This study aims to explore the extent to which the Educational Technology Teacher Preparation Program at Al-Aqsa University aligns with the International Society for Technology in Education (ISTE) standards. A descriptive-analytical approach was adopted, employing three data collection tools: content analysis of the official ISTE website, **,** Semi-Structured Intervieinterviews with a number of experts, and a questionnaire administrated to 660 male and female teachers who graduated from the program. A total of 168 valid responses. Findings revealed that the teacher preparation program demonstrated a 73.53% alignment with the International Society for Technology in Education (ISTE) standards, signifying a relatively high degree of conformity. This result was corroborated by expert interviews, which emphasized strong alignment in areas such as technological competence and digital leadership. However, experts also identified notable deficiencies in three critical domains: the integration of design thinking methodologies, the cultivation of innovation skills, and the implementation of technology-driven assessment practices. These findings underscore the imperative to revise and update specific program components to ensure greater correspondence with evolving global standards in the field.

Keywords: Educational Technology Teacher Preparation Program – International Society for Technology in Education (ISTE) Standards

Introduction

In our present era, the world has witnessed enormous changes across various fields of life. Over the past decade, the modern scientific and technological revolution has led to major advancements in technology and communications, significantly affecting economic, political, and educational systems. As a result, societies have found it imperative to keep pace with these developments by adopting and activating them in order to prepare a generation equipped with the knowledge, skills, and attitudes necessary to adapt to the global

community, influence it, and respond to its continuous changes—particularly in the field of information and communication technology (Ibrahim & Al-Nafie, 2020).

Therefore, many educational systems around the world have worked on establishing policies aimed at improving the quality of education to meet the challenges of digital transformation. This includes enhancing educational outcomes and preparing an ideal teacher capable of leading the educational process. Accordingly, numerous higher education institutions globally have begun aligning the outcomes of their teacher preparation programs with international academic and professional standards. This is done to ensure the preparation of highly qualified teaching cadres who can cope with contemporary global challenges, such as the need to integrate technology and digital learning tools into teaching and learning.

As noted by Al-Shara'i (2009), the development and evaluation of teacher preparation programs have become urgent and vital in contemporary societies due to their critical role in scientific and technological progress. However, some internal and external challenges have arisen, prompting educational institutions to re-examine the outcomes of their academic programs.

Shaqoura (2012) conducted a study on the reality of teacher preparation in educational technology in Palestine from the perspective of school teachers in Nablus. The findings indicated the availability of technological tools in teacher preparation programs and the perceived contribution of educational technology courses to professional training.

Zugbar (2020) investigated the current and expected status of teacher preparation programs at the University of Jordan and Yarmouk University. The study revealed several gaps, such as low-quality student intake, weak practical courses, and an overemphasis on theoretical aspects.

Similarly, Gilakjani, Leong, & Ismail (2013) highlighted that teachers' use of technology has significantly transformed teaching approaches and allowed for the integration of various educational theories. Abbas, Lai-Mei, & Ismail (2013) emphasized the growing role of digital learning tools in classrooms, noting that teacher preparation programs must integrate these tools effectively within curricula, pedagogy, and assessment to prepare pre-service teachers for this paradigm shift. According to Koehler, Mishra, & Yahya (2007), effective technology integration requires a deep understanding of the relationship between content, pedagogy, and technology.

The integration of technology in education—particularly in teacher preparation programs—requires a conceptual framework based on global standards that define specific competencies. One of the most widely adopted frameworks is the ISTE (International Society for Technology in Education) Standards. Weinburgh & Rivera (2003) asserted that the ISTE Standards can be used to design curricula across educational levels, including teacher preparation programs, ensuring that educators possess the necessary knowledge and skills to use technology meaningfully.

Given the rapid advancements in knowledge and technology, especially in education, it has become essential to develop guiding frameworks for technology integration. Many teacher

education programs have adopted ISTE Standards as a foundation for professional development and instructional innovation (Al-Maghribi, 2016). She further noted that today's learners are the first generation to grow up with digital tools, making it critical to leverage these tools effectively in education.

In response to this growing interest in developing and revising teacher preparation programs, numerous studies have assessed the extent to which these programs equip pre-service teachers to integrate technology. Lawless & Pellegrino (2007) provided evidence of limited integration of technology in teacher preparation. Graham, Tripp, & Wentworth (2007) found that most teachers used technology mainly for producing traditional instructional materials. West & Graham (2007) noted that the rapid pace of technological change outpaces the readiness of pre-service teachers.

Other studies, such as those by Hew & Brush (2007) and Dunleavy & Milton (2008), revealed that pre-service teachers often feel unprepared to integrate technology effectively. Jonassen (2003) emphasized the importance of embedding technology within teacher preparation programs to equip future educators with 21st-century skills.

Several studies have explored the availability and application of ISTE Standards in teacher preparation programs. For example, Kamal Eldrin (2021) assessed the alignment of faculty ICT competencies at Najran University with ISTE Standards, finding a moderate level of alignment. Hakami (2019) investigated the presence of ISTE Standards among students at Umm Al-Qura University, revealing a moderate level of awareness and no significant gender differences.

Aktay (2009) examined primary school teachers' readiness in Turkey based on ISTE competencies, with 70% feeling adequately prepared. Ayad & Ajrami (2017) found low implementation levels of ISTE Standards in Gaza's technical education colleges.

Al-Judai & Sharifi (2019) found current teacher training programs insufficiently aligned with ISTE (NETS-T) standards and recommended the development of national or globally recognized competency frameworks. Bajabaa (2017) reported strong alignment between faculty technology integration practices at Taibah University and ISTE Standards. Amer & Abdulrahim (2015) noted that Omani vocational education students met ISTE Standard 2 at an acceptable level, though gaps remained.

Lastly, Al-Qahtani (2022) reported very low awareness among female education students at Hail University of ISTE Standards during distance learning in the COVID-19 pandemic.

Based on these findings, the researcher identified a critical need to assess the extent to which teacher preparation programs effectively integrate technology and adopt the International Society for Technology in Education (ISTE) Standards. Consequently, this study aims to investigate the extent to which the Educational Technology Teacher Preparation Program at Al-Aqsa University aligns with ISTE Standards and to identify potential areas for future improvement in preparing pre-service teachers.

Problem Statement

In recent years, the educational landscape has undergone a significant transformation due to the rapid advancement of technology and the emergence of new digital tools, which have directly impacted learning environments and teaching methods. This shift has compelled higher education institutions—particularly colleges of teacher education—to develop and update their programs to align with global standards aimed at improving the quality of education. Among these standards are those set by the International Society for Technology in Education (ISTE), which serve as a global reference for identifying the competencies required of teachers in the digital age.

In light of these developments, there is a growing need to evaluate the extent to which the Educational Technology Teacher Preparation Program at Al-Aqsa University adheres to ISTE standards. This evaluation seeks to improve the quality of the program's outcomes and ensure its alignment with the needs of both the local and international job markets.

Accordingly, this study was conducted to shed light on the current implementation of ISTE standards within the program from the perspectives of both students and experts.

Study Objectives

1. To identify the ISTE standards required in educational technology teacher preparation programs.
2. To examine Alignment of the Educational Technology Teacher Preparation Program at Al-Aqsa University with ISTE Standards from the perspective of students.
3. To explore the alignment between the Educational Technology Teacher Preparation Program at Al-Aqsa University and ISTE standards from the viewpoint of experts.
4. To verify whether the Educational Technology Program at Al-Aqsa University is regularly updated in accordance with ISTE standards.
5. To explore the most effective practices and successful models that Al-Aqsa University can adopt to promote the sustainable implementation of ISTE standards, based on expert feedback.

Research Questions

1. What are the ISTE standards that should be present in teacher preparation programs for educational technology teachers?
2. To what extent are the ISTE standards implemented in the Educational Technology Teacher Preparation Program at Al-Aqsa University from the perspective of students in the program?
3. To what extent are the ISTE standards available in the Educational Technology Teacher Preparation Program at Al-Aqsa University from the perspective of experts?
4. Are the curriculum plans of the Educational Technology Program at Al-Aqsa University regularly updated in accordance with ISTE standards from the perspective of experts? *(Proposed)*
5. What are the best practices or successful models that Al-Aqsa University can adopt to sustainably implement ISTE standards in the Educational Technology Program, based on expert experiences? *(Proposed)*

Methodology

In this study, the researcher employed a Mixed Methods Approach, which combines both quantitative and qualitative methods. This approach was adopted to obtain a comprehensive understanding of the current implementation of the International Society for Technology in Education (ISTE) standards within the Educational Technology Teacher Preparation Program at Al-Aqsa University.

Context of the Study

The study was conducted within the Palestinian Ministry of Education, among graduates of the Educational Technology Program at Al-Aqsa University, who are currently working as educational technology teachers in the 2022-2023 academic year.

Study Population

The study population consisted of all male and female teachers involved in the Educational Technology Teacher Preparation Program in Palestine, totaling 660 teachers, according to the Palestinian Ministry of Education (Palestinian Ministry of Education, 2023, p. 76).

Study Sample: The study sample consisted of 168 male and female teachers from the same program. Table (1) illustrates the details of the study sample.

Table (1)
Study Sample Distribution

University	Gender	Number
Al-Aqsa University	Male	69
	Female	99
Total		**168**

Study Instruments

In this study, the researchers utilized three principal instruments designed to align with the study's objectives and research questions, ensuring an integrated approach that combined both quantitative and qualitative methodologies. The design of these instruments adhered to rigorous methodological principles and incorporated the psychometric characteristics required for validity and reliability. The instruments used in the study are as follows:

Document Analysis Instrument

This instrument aimed to analyze the latest edition (2022) of the International Society for Technology in Education (ISTE) standards, with the objective of identifying the key measurable indicators that should be incorporated into teacher preparation programs in educational technology. The researchers identified seven core areas representing the fundamental standards for teachers within digital learning environments: Learner, Leader, Citizen, Collaborator, Designer, Facilitator, and Analyst. Each area was systematically analyzed using an analytical table that included the indicator code, formulation, measurability, and its relevance to the academic context of the institution under study.

Personal Interview Instrument

This instrument was designed to gather the perspectives of a group of experts and specialists in educational technology and curriculum design regarding the alignment of the Educational Technology Teacher Preparation Program at Al-Aqsa University with the ISTE standards, as well as the extent to which these standards are applied in the program's actual practices. The interview guide included six themes derived from the dimensions of the international standards: alignment of curriculum plans, integration of practical activities, technological infrastructure, professional development of faculty members, field training practices, and future recommendations. The interviews were conducted individually in a semi-structured format with a group of experts. They were then transcribed and thematically analyzed using an open coding and categorization approach based on these six themes, resulting in the integration of quantitative and qualitative data.

Questionnaire Instrument

The development of the questionnaire was informed by relevant educational literature and previous studies addressing the ISTE standards in evaluating teacher preparation programs, including studies by Al-Qahtani (2022), Kamal Al-Dreen (2021), Hakami (2019), Ayad and Ajrami (2017), Bajabaa (2017), Amer and Abdul Rahim (2015), and Aktay (2009). The final version of the questionnaire included seven primary themes, each representing one of the ISTE standards, and comprised a series of measurable behavioral items (ranging from 8 to 10 items per theme) formulated as statements using a five-point Likert scale (Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree).

Instrument Validity

The instrument was reviewed by a panel of specialized experts, and their scientific and professional feedback was incorporated to refine and finalize the study instrument.

Internal Consistency Validity

Internal consistency was calculated by determining the correlation coefficient between each item and the total score for the standards, as detailed in Table (2).

Table (2)

Pearson Correlation Coefficients Between Each Item and the Total Score of Each Standard

No.	Standard	Pearson Correlation Coefficient	Sig. Value
1	Learner (Teacher as Learner)	.947**	0.000
2	Leader (Teacher as Leader)	.936**	0.000
3	Citizen (Teacher as Citizen)	.736**	0.000
4	Collaborator (Teacher as Collaborator)	.739**	0.000
5	Designer (Teacher as Designer)	.962**	0.000
6	Facilitator (Teacher as Facilitator)	.693**	0.000
7	Analyst (Teacher as Analyst)	.907**	0.000

Note: Significant at $\alpha = 0.01$

The results indicate that all computed correlation coefficients are statistically significant, ranging between .693 and .962. This confirms the appropriateness and reliability of the scale.

Construct Validity: Construct validity was assessed by calculating the correlation between each ISTE standard and the overall questionnaire score. Table (3) presents these results.

Table (3)

Pearson Correlation Coefficients Between Items of the "Learner" Standard and the Total Score

Standard	Item	N	Pearson Correlation Coefficient	Sig. Value
Standard 1: Learner (Teacher as Learner)	1	30	.832**	0.000
	2	30	.850**	0.000
	3	30	.749**	0.000
	4	30	.827**	0.000
	5	30	.672**	0.000
	6	30	.846**	0.000
	7	30	.755**	0.000
	8	30	.706**	0.000
	9	30	.634**	0.000
	10	30	.697**	0.000

Note: Significant at α = 0.01

The computed correlation coefficients are all statistically significant, ranging between .634 and .850, which indicates a satisfactory and reliable internal consistency for the scale.

Table (4)

Pearson Correlation Coefficients Between Items of the "Leader" Standard and the Total Score

Standard	Item	N	Pearson Correlation Coefficient	Sig. Value
Standard 2: Leader (Teacher as Leader)	1	30	.670**	0.000
	2	30	.892**	0.000
	3	30	.727**	0.000
	4	30	.812**	0.000
	5	30	.696**	0.000
	6	30	.839**	0.000
	7	30	.768**	0.000
	8	30	.693**	0.000
	9	30	.614**	0.000
	10	30	.672**	0.000

Note: Significant at α = 0.01

The calculated correlation coefficients are statistically significant and range from .614 to .892, indicating that the internal consistency of the scale is appropriate and reassuring.

Table (5)

Pearson Correlation Coefficients Between Items of the "Citizen" Standard and the Total Score

Standard	Item	N	Pearson Correlation Coefficient	Sig. Value
Standard 3: Citizen (Teacher as Citizen)	1	30	.623**	0.000
	2	30	.660**	0.000
	3	30	.823**	0.000
	4	30	.772**	0.000
	5	30	.755**	0.000
	6	30	.770**	0.000
	7	30	.800**	0.000
	8	30	.634**	0.000
	9	30	.812**	0.000
	10	30	.836**	0.000
	11	30	.824**	0.000
	12	30	.838**	0.000

Note: Significant at α = 0.01
The correlation coefficients ranged from .623 to .838, indicating strong internal consistency for this standard.

Table (6)
Pearson Correlation Coefficients Between Items of the "Collaborator" Standard and the Total Score

Standard	Item	N	Pearson Correlation Coefficient	Sig. Value
Standard 4: Collaborator (Teacher as Collaborator)	1	30	.671**	0.000
	2	30	.810**	0.000
	3	30	.904**	0.000
	4	30	.798**	0.000
	5	30	.857**	0.000
	6	30	.843**	0.000
	7	30	.625**	0.000
	8	30	.850**	0.000
	9	30	.840**	0.000

Correlations ranged from .625 to .904, showing excellent consistency for the "Collaborator" standard.

Table (7)
Pearson Correlation Coefficients Between Items of the "Designer" Standard and the Total Score

Standard	Item	N	Pearson Correlation Coefficient	Sig. Value
Standard 5: Designer (Teacher as Designer)	1	30	.786**	0.000
	2	30	.809**	0.000
	3	30	.710**	0.000
	4	30	.837**	0.000
	5	30	.704**	0.000
	6	30	.831**	0.000
	7	30	.769**	0.000
	8	30	.690**	0.000
	9	30	.629**	0.000
	10	30	.749**	0.000
	11	30	.741**	0.000

Correlations ranged between .629 and .837, indicating solid construct reliability.

Table (8)
Pearson Correlation Coefficients Between Items of the "Analyst" Standard and the Total Score

Standard	Item	N	Pearson Correlation Coefficient	Sig. Value
Standard 7: Analyst (Teacher as Analyst)	1	30	.774**	0.000
	2	30	.796**	0.000
	3	30	.792**	0.000
	4	30	.786**	0.000

Correlation values ranged from .774 to .796, reflecting good reliability of this dimension.

Table (9)
Pearson Correlation Coefficients Between Items of the "Facilitator" Standard and the Total Score

Standard	Item	N	Pearson Correlation Coefficient	Sig. Value
Standard 6: Facilitator (Teacher as Facilitator)	1	30	.726**	0.000
	2	30	.918**	0.000
	3	30	.912**	0.000
	4	30	.888**	0.000

Correlation coefficients ranged between .726 and .918, indicating a high degree of internal consistency for the "Facilitator" standard.

Instrument Reliability

Overall Cronbach's Alpha

The reliability of the evaluation scale was calculated using Cronbach's Alpha formula. The total reliability coefficient for the instrument assessing the teacher preparation program in light of ISTE standards was 0.977, indicating a very high level of reliability.

Split-Half Reliability

eliability was also assessed using the split-half method, which yielded a reliability coefficient of 0.908. After applying the Spearman-Brown correction, the adjusted coefficient reached 0.952, which confirms excellent internal consistency.

Instrument Analysis

In line with previous educational studies, data were processed using the SPSS software. Verbal responses were converted into numerical values based on a 5-point Likert scale as follows: 5 = Very High Degree , 4 = High Degree, 3 = Moderate Degree, 2 = Low Degree, 1 = Very Low Degree

The responses were verified and deemed valid for statistical analysis.

Table (10)
Adopted Criterion Scale for Interpretation of Means

No.	Weight Range	Agreement Percentage	Interpretation
1	1.00 – 1.79	20% – 35.9%	Very Low Degree
2	1.80 – 2.59	36% – 51.9%	Low Degree
3	2.60 – 3.39	52% – 68.9%	Moderate Degree
4	3.40 – 4.19	69% – 83.9%	High Degree
5	4.20 – 5.00	84% – 100%	Very High Degree

Findings and Discussion

Answer to Research Question 1:"What are the ISTE Standards for Educators that should be present in teacher preparation programs in educational technology?"

To answer this question, the researcher relied on the ISTE (International Society for Technology in Education) standards for educators, as referenced in the official source (ISTE, 2022).

ISTE Standards for Teachers

Domain 1: Learner

1. I set clear learning goals to explore modern technological methods in the educational process.
2. I encourage students to model creative and innovative thinking in modern education.
3. I motivate students to self-explore real-world issues using online platforms.
4. I promote the use of digital technology in problem-solving strategies.
5. I support students in developing critical thinking through digital tools.
6. I encourage optimal thinking for information acquisition in innovative ways.
7. I use collaborative learning strategies to build digital knowledge through real and virtual sources.
8. I engage in both local and global educational platforms for professional development.
9. I involve students in various activities through digital platforms.
10. I stay updated with the latest research in the field of educational technology.

Domain 2: Leader

1. I encourage students to engage locally and globally to discover knowledge through self-directed learning using innovative educational tools.
2. I ensure integration of modern educational technologies in the learning process.
3. I strive to ensure equitable access to educational resources for students.
4. I promote student-led technological initiatives.
5. I guide students in making appropriate decisions during the learning process.
6. I contribute to developing leadership skills in students.
7. I ensure students engage in professional growth by exploring research and e-learning platforms.
8. I encourage students to keep up with the latest educational technology through online sources.
9. I support students in acquiring knowledge through self-learning.
10. I promote the discovery of students' tech skills via independent learning.

Domain 3: Citizen

1. I share students' experiences via educational platforms to support problem-solving.
2. I guide students in discovering modern knowledge through the digital world.
3. I work to reduce digital illiteracy among students.
4. I promote digital citizenship among learners.
5. I encourage the use of cloud storage apps.
6. I support the use of mobile technologies in education.
7. I follow global developments in digital tool usage in education.
8. I motivate students to explore the latest technological trends through online resources.
9. I promote safe and ethical online practices.

10. I guide students on protecting intellectual property rights when browsing online content.
11. I ensure student privacy is protected and avoid publishing any online activities without their consent.
12. I encourage proper behavioral etiquette in digital learning environments.

Domain 4: Collaborator

1. I plan collaboratively with colleagues for educational activities in edtech.
2. I share student experiences with colleagues to solve educational challenges.
3. I engage with colleagues and students via social media to discover new learning experiences.
4. I share diverse educational files (documents, audio, images, videos) with students.
5. I encourage students to join specialized e-collaborative learning groups.
6. I design dedicated learning groups through social media.
7. I promote the culture of optimal use of educational technology.
8. I support cross-cultural collaboration for knowledge acquisition.
9. I encourage academic exchange with Arab and international universities to diversify knowledge.

Domain 5: Designer

1. I possess solid knowledge of instructional design models.
2. I stay updated on practical applications of design models.
3. I am capable of designing e-learning platforms.
4. I can manage digital content for instructional materials.
5. I am able to create digital learning content.
6. I design interactive lessons.
7. I design electronic tests using educational platforms.
8. I can build question banks for evaluating students.
9. I can create online learning groups that apply active digital learning strategies.
10. I design interactive videos for educational purposes.
11. I apply advanced design processes to spark student creativity.

Domain 6: Facilitator

1. I foster a culture where students take ownership of their learning goals independently or collaboratively.
2. I effectively manage the use of technology and modern teaching strategies through digital platforms.
3. I create opportunities for students to learn design thinking, innovation, and problem-solving.
4. I nurture creativity and self-expression to communicate knowledge and ideas.

Domain 7: Analyst

1. I offer alternative ways for students to demonstrate competency and critical thinking using technology.
2. I use modern technologies to design and implement a variety of formative and summative assessments tailored to learners' needs, providing timely feedback.
3. I use assessment data to continuously improve the teaching-learning process and guide students effectively.

4. I utilize assessment outcomes as feedback tools in the learning process.

Answer to Research Question 2: " To what extent are the ISTE standards available in the Educational Technology Teacher Preparation Program at Al-Aqsa University from the perspective of experts?"

To answer this question, the researcher analyzed students' responses regarding the availability of the ISTE standards. The results are presented in **Table (10)** below.

Table (11)
Means, Standard Deviations, and Percentages for the Overall ISTE Standards in Educational Technology Teacher Preparation Programs

]No.	ISTE Standard	Mean	Std. Deviation	Percentage	Rank	Degree of Availability
1	Learner	3.65	0.53	72.96%	5	High
2	Leader	3.72	0.63	74.35%	1	High
3	Citizen	3.69	0.66	73.84%	4	High
4	Collaborator	3.69	0.60	73.87%	3	High
5	Designer	3.64	0.62	72.78%	7	High
6	Facilitator	3.70	0.62	74.01%	2	High
7	Analyst	3.64	0.60	72.86%	6	High
	Overall Average	**3.68**	**0.54**	**73.53%**	—	**High**

Interpretation of Results: ***The table above shows that the overall mean score regarding the availability of ISTE standards in the educational technology teacher preparation programs at Al-Aqsa University is*** *3.68,* ***with a percentage of*** *73.53%,* ***indicating a*** *high* ***degree of availability.***

The percentage values for the individual standards ranged from **72.78%** to **74.35%**, all falling within the "high" level category. The **highest-rated standard** was **"Leader"** with **74.35%**, while the **lowest-rated** was **"Designer"** with **72.78%**.

These results reflect a strong presence of ISTE standards across the program from the students' perspectives.

Answer to Research Question 3: "To what extent are the ISTE Standards for Educators available in the teacher preparation programs in educational technology at Al-Aqsa University, from the perspective of experts?"

Based on the analysis of interviews conducted with a group of educational technology experts, it is evident that the availability of the ISTE standards in teacher preparation programs at Al-Aqsa University is partial and faces multiple challenges that hinder comprehensive implementation. The experts' insights focused on several key dimensions:

1. Curriculum Alignment with ISTE Standards: Experts unanimously agreed that the current curricula at Al-Aqsa University lack full alignment with the ISTE standards. Most courses emphasize theoretical aspects, with limited integration of practical applications and skills necessary for keeping up with digital transformation.
Zayyat et al. (2019) confirmed that many Arab universities suffer from a noticeable gap

between course content and global standards, which is also evident at Al-Aqsa through the limited focus on skills like critical thinking, creativity, and digital collaboration.

2. Digital and Technological Infrastructure: Implementing ISTE standards requires a robust infrastructure that supports a comprehensive digital learning environment. However, experts indicated that the university struggles with limited technological resources such as digital labs, tablet devices, and interactive platforms.
Al-Badawi (2020) highlighted infrastructure weakness as one of the most significant obstacles to digital transformation in Arab educational institutions, making ISTE implementation incomplete in the absence of supportive digital tools.

3. Training of Academic Staff: Experts emphasized that the successful implementation of ISTE standards heavily depends on the digital competence of faculty members. However, current training programs primarily focus on basic technical skills without delving into international standards or pedagogical applications.
According to Abdullah (2021), continuous and ISTE-based professional development enhances educators' competencies in digital design and project-based learning, which is still limited at Al-Aqsa.

4. Comparison with International Practices: Experts noted a significant gap when comparing Al-Aqsa University to international institutions in the U.S. or Europe. These institutions embed ISTE standards into all aspects of their programs, including practical training, assessment, and active learning strategies.
Smith & Johnson (2018) emphasized that field projects based on ISTE standards enhance design thinking and innovation among educators — practices largely absent in the local context.

5. Students' Orientation Toward Digital Learning: Some experts stated that students are enthusiastic and willing to learn 21st-century skills, yet limited practical opportunities and underused digital activities act as barriers to their development.
Al-Farsi (2020) showed that students involved in ISTE-aligned learning activities exhibit significant growth in digital leadership, problem-solving, and innovation — all essential for future educators.

Overall Conclusion: The findings from expert interviews indicate that the availability of ISTE standards at Al-Aqsa University is partial and requires strategic efforts to develop curricula, infrastructure, and teacher capacity. Without a comprehensive and global standards-based approach, teacher preparation will remain traditional and unresponsive to digital transformation demands.

Answer to Research Question 4: "Are the educational technology curricula at Al-Aqsa University regularly updated in accordance with ISTE standards, from the perspective of experts?"

Insights from interviews with educational technology experts revealed that curricular development at Al-Aqsa University is neither regular nor systematically aligned with ISTE standards. According to experts, curriculum updates are often reactive to external pressures rather than part of a strategic and continuous improvement plan.

1. Limited and Irregular Development Efforts: While some updates to the curriculum have occurred, they are generally partial and not grounded in a comprehensive framework like ISTE. Courses are sometimes updated based on field feedback or administrative changes, but

there is a lack of gap analysis or clear alignment with ISTE standards. Al-Khalifi (2019) noted that many Arab universities suffer from an absence of structured, ongoing curriculum development based on global edtech standards.

2. Lack of Continuous Evaluation and Documentation: Experts highlighted the absence of formal mechanisms for periodic evaluation and documentation of curriculum revisions. There is no permanent committee assigned to align programs with international standards such as ISTE.

Almekhlafi (2020) stressed that official structures for evaluating educational programs based on technology standards are essential for continuous improvement.

3. Limited Participation of Faculty and Students: Several participants noted that curriculum development often excludes meaningful involvement from faculty members and students, which reduces the effectiveness and relevance of the updates. Smith & Carter (2018) recommended building internal institutional partnerships to ensure participatory and sustainable alignment with standards like ISTE.

4. Organizational and Financial Challenges: Most experts agreed that financial and administrative constraints, as well as the broader socio-political context in Gaza, are major barriers to establishing a continuous development cycle based on global standards. Additionally, faculty training on ISTE standards is insufficient, making it difficult to incorporate these frameworks into effective learning plans.

General Conclusion

Based on experts' opinions, the process of developing curricula in the Educational Technology Program at Al-Aqsa University requires reorganization and restructuring. It should become a periodic institutional process grounded in self-assessment and aligned with international quality standards such as ISTE. This necessitates the adoption of a strategic plan, provision of necessary resources, and the promotion of a culture of continuous improvement.

Answer to Question Five

"What are the most prominent successful practices or models that Al-Aqsa University can adopt to sustainably implement ISTE standards in the Educational Technology Program, based on your experiences as experts?"

Through interviews with experts, there was a consensus that applying ISTE standards in teacher preparation programs in educational technology requires the adoption of practical, applicable models while considering the local context of Al-Aqsa University and the conditions in the Gaza Strip. The experts pointed to several successful and sustainable models and practices that can be gradually adopted:

1. **Curriculum Mapping to ISTE Standards:** Experts emphasized aligning course learning outcomes directly with ISTE standards and indicators through a systematic planning process for content, activities, and assessment methods. This ensures the integration of theory and practice. Foulger et al. (2017) highlighted the effectiveness of the backward design model based on ISTE standards in preparing teachers to use technology efficiently.
2. **Digital Leadership for Teachers Model:** Experts recommended adopting a model that focuses on developing the teacher's role as a digital leader, instructional designer, and facilitator of collaborative learning. This aligns with ISTE standards, which emphasize fostering critical thinking and innovation among learners. Wang & Patterson (2020) demonstrated that training teachers in digital leadership enhances the sustainability of technology integration.

3. **Digital Education Incubators Model:** Among the innovative practices suggested is the establishment of digital education incubators within the university, functioning as experimental environments and learning labs to develop and apply ISTE-aligned ideas and projects. These incubators involve faculty members, students, and supervisors, offering a space to test digital tools, design standard-based educational units, and build digital leadership skills. Ally & Wark (2020) noted that such incubators enable universities to systematically experiment with educational technologies and enhance educators' data- and technology-driven decision-making.
4. **Global Exchange Partnership Model:** Experts identified international partnership and exchange models as among the most effective and sustainable. These go beyond institutional cooperation to include real exchanges of experiences, knowledge, and educational resources between Al-Aqsa University and leading institutions applying ISTE standards. This includes designing academic exchange programs, virtual workshops, joint faculty training, and cross-border digital education projects. Burns & Santos (2021) emphasized that global-standard-based exchange programs facilitate sustainable knowledge transfer and localization of best practices, especially in challenged contexts.
5. **Continuous Self-Assessment Model:** Some experts consider the continuous self-assessment model to be highly effective. It enables educational technology teacher preparation programs to systematically and periodically review the degree to which ISTE standards are met. Academic teams conduct regular internal evaluations of the implementation of each ISTE standard across curricula, training activities, and teaching methods using digital tools and standardized surveys. Davis & Hall (2020) found that continuous self-assessment fosters a culture of institutional development, improves data-driven decision-making, and promotes transparency and commitment to international quality standards.

Overall Conclusion

Implementing ISTE standards at Al-Aqsa University requires adopting a combination of advanced, practical models that are tailored to the local context and aligned with the standards of the Palestinian Accreditation and Quality Assurance Commission. This implementation must be supported by ongoing training, institutional backing, community partnerships, and international academic and student exchanges. Sustainability in this context relies on strategic planning, evaluative monitoring, and cultivating a culture of continuous change.

Conclusion

In light of the results of the current study regarding the extent to which the teacher preparation program in educational technology at Al-Aqsa University applies the ISTE standards, the following recommendations are presented:

1. Curriculum and Academic Plans

- Redesign the teacher preparation curriculum to clearly incorporate ISTE standards and indicators in the learning outcomes.
- Integrate practical and digital activities into each course to foster creative thinking and project-based learning aligned with the “Designer & Facilitator” roles.
- Conduct regular reviews of academic plans at least every two years in collaboration with educational technology specialists to ensure alignment with ISTE updates.

Faculty Development

- Offer regular training programs for faculty members on implementing ISTE standards in course design and assessment.
- Promote a culture of digital teaching among faculty through digital professional learning communities that share best practices.
- Link faculty performance evaluations to their application of technology standards in teaching.

Infrastructure and Technical Support

- Provide an integrated digital environment including smart computer labs, robust internet networks, and interactive learning platforms.
- Invest in and develop Learning Management Systems (LMS) to align with global digital standards such as ISTE.
- Provide open educational resources (OER) to support teachers and students in enhancing their digital competencies.

Institutional Partnerships and Development

- Establish strategic partnerships with international institutions that implement ISTE standards to benefit from their expertise in training and capacity-building.
- Implement the "Digital Incubators" model within the university to support educational technology innovation among teachers and students.
- Create a periodic self-assessment unit based on ISTE indicators to measure progress and identify areas for improvement.

Student Engagement (Pre-service Teachers)

- Engage students in designing digital projects that simulate future learning environments in alignment with the "Learner" standard.
- Incorporate digital skills assessments into the final evaluations of educational technology courses.
- Prepare students to use AI tools and augmented reality in lesson design in response to global digital transformation trends.

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