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Acceptance of Digital Technologies in Vocational and Technical Education: Survey Evidence from PTUK

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ABSTRACT: This study aimed to examine the acceptance level of digital technologies in vocational and technical education at Palestine Technical University - Kadoorie, focusing on the factors influencing students' adoption and use of digital tools. A quantitative survey design was used, targeting students from various vocational and technical programs. A structured questionnaire measured key factors, including perceived usefulness, perceived ease of use, digital literacy, attitudes toward technology, and behavioral intention to use digital tools. The results showed a general high level of acceptance of digital technology among students, with statistically significant differences in gender, place of residence, and academic level. No statistically significant differences were found in terms of university degree and university. A detailed analysis indicated that third-year students and students residing in camps demonstrated the highest levels of acceptance, reflecting the influence of exposure, experience, and dependence on digital tools. Based on these findings, the researcher recommended strengthening digital literacy programs, ensuring equitable access to technology, systematically integrating digital tools into curricula, and providing targeted support for specific student groups. The study contributes to an understanding of the multiple factors that influence technology adoption in vocational and technical education and provides practical insights for policymakers and educators to support effective and sustainable digital integration.

Keywords: *Digital Technologies, Technology Acceptance, Vocational Education, Technical Education, Palestine, Digital Literacy.*

Introduction

In recent years, smart technologies play a crucial role in the planning and management of education. As Badshah et al. (2023) noted, “IoTbased intelligent educational systems offer possibilities that can transform the environment of learning by offering adaptive and efficient solution to users” (p. 5). Likewise, Çaylı and Yılmaz (2025) concluded that “AI-based scheduling and multi-criterion decision-making support increase institutional resource utilization” (p. 97). These evidences show that intelligent planning for education is closely related to the sustainable development aims.

Beyond education, research on smart cities provides key insights into the ways in which data-driven planning contributes to resilience and inclusivity. Boulanger (2022) argued that “the roadmap to the smart city post-Covid-19 is one of innovation and adaptive strategies” (p. 3). Similarly, Hossin et al. (2023) found that “big data driven governance turns public decision making into more transparent/sustainable” (p. 4). This understanding is of special significance in teaching where similar methods can promote sustain ability and equitability.

Smart education also relies on systems capable of personalizing learning experiences. Embarak (2022) explained that "AI models based on the Internet of Things open up opportunities for personalized smart education systems" (p. 105). Similarly, Haderer and Ciolaco (2022) explained that "AI-assisted task and time planning increases efficiency and supports Education 4.0 practices" (p. 1330). These examples underscore the need for strategic planning that integrates technology with educational objectives.

Financial and administrative planning plays a pivotal role in smart education. Harahap and Santosa (2024) demonstrated that “effective management of education funds through smart methods significantly improves school quality” (p. 168). Additionally, Hassan et al. (2024) asserted that “the integration of enterprise resource planning (ERP) systems, blockchain, the Internet of Things (IoT), and cloud computing provides a comprehensive management information system for smarter decision-making” (p. 460). Therefore, smart planning must not only involve advanced technologies but also include effective resource management.

National and institutional policies are also essential for scaling up smart education initiatives. Yang et al. (2024) argued that “national smart education policies provide a strategic framework for guiding global trends in digital transformation” (p. 7). In a similar vein, Makinde et al. (2024) stated that “smart learning is a transformative model for achieving the Sustainable Development Goals in education” (p. 215). These studies confirm that political and strategic support is a key factor for the success of smart education planning.

Taken together, studies demonstrate that smart educational planning represents a technological innovation and a strategic tool for sustainable development. As Kristevska and Bajrami (2023) conclude, “Strategic planning ensures long-term educational success by aligning goals and resources” (p. 94). Similarly, Ricky and Mamilla (2021) note that “research and education must go hand in hand toward building a smart and sustainable world” (pp. 53–560). Thus, smart educational planning not only contributes to improving current practices but also to building sustainable and equitable education systems.

Another important aspect of smart educational planning is the integration of inclusive and sustainable initiatives. Kim and Choi (2023) demonstrated through their empirical research on the "Green Smart" initiative that "spatial planning in schools can align with broader educational and environmental goals" (p. 474). Similarly, Kamini and Komitiu (2023) emphasized the role of "inclusive education technologies in transforming African cities into inclusive smart cities" (p. 3). These studies demonstrate how sustainability and equity can be integrated into smart education through thoughtful design and planning.

Finally, international perspectives highlight the need to understand smart education as part of a global transformation. Tran and Tran (2022) concluded from a study of Vietnam that “effective implementation of smart education requires adapting lessons learned to local contexts” (p. 237). In parallel, Maza (2021) noted that “the goals of the 2030 Agenda are essential for linking education and smart city development” (p. 26). These findings suggest that while smart education planning draws on global frameworks, its success ultimately depends on how strategies are localized to meet societal needs and sustainable development priorities.

Background of the Study

In the 21st century, education has been increasingly impacted by rapid technological change and the global pursuit of sustainable development. The growing demand for quality, equity, and adaptability in education has motivated researchers and policymakers to adopt smart solutions that can revolutionize traditional practices. As Badshah et al. (2023) note, the integration of the Internet of Things (IoT) into education "is reshaping learning environments by providing adaptive and effective solutions" (p. 5). This signals a shift from traditional approaches toward smart systems that respond to the diverse needs of learners and institutions.

Smart educational planning is not limited to classroom instruction but extends to the strategic management of resources, time, and infrastructure. Studies on AI-based scheduling systems confirm that smart planning enhances institutional efficiency while supporting better learning outcomes (Çaylı & Yılmaz, 2025). Similarly, Embark (2022) highlighted the potential of personalized learning systems, where "AI-based models create opportunities for adaptive learning tailored to student behavior" (p. 105).

These findings confirm that the success of smart education depends not only on technology, but also on how these innovations are integrated into sustainable strategies.The broader context of smart cities offers further insight into how intelligent planning can support resilience and sustainability. Boulanger (2022) showed that post-pandemic smart city strategies prioritize data-driven solutions to enhance adaptability, while Hossin et al. (2023) argued that “big data-driven governance transforms public decision-making toward more transparent and sustainable practices” (p. 4). Drawing on these lessons, education can similarly benefit from innovative planning frameworks that combine technological tools with long-term sustainability goals.

The financial and administrative aspects of smart planning are critical. Harhab and Santosa (2024) demonstrated that smart management of educational funds can directly improve school quality, while Hassan et al. (2024) demonstrated that comprehensive systems that integrate enterprise resource planning (ERP), blockchain, the Internet of Things (IoT), and cloud computing enable smarter decision-making. These studies emphasize that smart education planning must combine digital transformation with effective governance and financial accountability to ensure meaningful and lasting impact.

National and institutional policies play a critical role in scaling smart education practices. Yang et al. (2024) argued that "national smart education policies provide a strategic framework to guide global trends in digital transformation" (p. 7). Similarly, Makinde et al. (2024) emphasized that smart learning serves as a "transformative model for achieving the Sustainable Development Goals in education" (p. 215). These contributions suggest that while local initiatives are important, supportive policies are necessary to integrate smart planning into broader education systems and align it with the Sustainable Development Goals.Despite these advancements, several challenges remain. Research highlights gaps in inclusive design, contextual adaptation, and equity in access to smart education systems (Kameni & Koumetio, 2023; Tran & Tran, 2022). As Mazza (2021) emphasized, the goals of Agenda 2030 link education directly to sustainable urban and social development, yet the practical realization of these goals varies widely. This study, therefore, seeks to address the gap by exploring smart educational planning not only as a technological innovation but as an innovative approach that can meaningfully contribute to achieving sustainable development in education.

Another important dimension of smart educational planning is the integration of inclusive and environmentally conscious strategies. Kim and Choi (2023) explained that “spatial planning in schools aligned with green initiatives supports broader educational and environmental goals” (p. 474). Similarly, Camini and Comiteau (2023) highlighted that “inclusive educational technologies can transform cities into smart, equitable, and sustainable learning environments” (p. 3). These findings suggest that smart planning must consider both environmental sustainability and accessibility, ensuring that technological innovations benefit all learners.

Finally, a global perspective emphasizes that smart educational planning must adapt to diverse local contexts while adhering to international frameworks. Tran and Tran (2022) noted that “effective implementation of smart education requires contextualizing lessons learned within local needs” (p. 237). Similarly, Mazza (2021) argued that “the 2030 Agenda provides a critical link between education and sustainable urban development” (p. 26). This confirms that while global standards guide the direction of smart education, successful implementation depends on designing strategies that are tailored to the specific challenges and opportunities of society.

Theoretical Framework

Smart educational planning is based on the principle that effective learning environments require both strategic foresight and technological integration. According to Demir (2021), "The smart education framework provides a structured approach to integrating digital tools and pedagogical strategies" (p. 29). This framework emphasizes planning as a central mechanism for aligning institutional objectives with learner needs and broader sustainable development goals.

At the core of this framework is the role of artificial intelligence (AI) and the Internet of Things (IoT) in enhancing decision-making processes. Badshah et al. (2023) highlighted that IoT-based systems allow educators to monitor and adapt learning experiences in real time, creating a more responsive and efficient environment (p. 8). Similarly, Embarek (2022) demonstrated that AI-driven personalization supports individualized learning paths, enhancing student engagement and academic outcomes.Education 4.0 theories complement smart planning by emphasizing digital literacy, adaptive learning, and automation. Haderer and Ciolacu (2022) argued that “AI-assisted task and time planning systems enable students and institutions to optimize workflows and improve learning efficiency” (p. 1329). This approach situates technological tools not as replacements for educators but as enablers of more strategic and evidence-based planning.

Strategic planning models in education emphasize the importance of aligning resources, policies, and organizational structures with institutional goals. Krsteveska and Bajrami (2023) note that "strategic planning ensures long-term educational success by linking objectives to available resources" (p. 94). By integrating these models, smart education planning contributes to bridging the gap between high-level policy frameworks and practical implementation.

Incorporating sustainability principles is essential for linking smart education to global development agendas. Makinde et al. (2024) argue that "smart learning is a transformative model for achieving the Sustainable Development Goals in education" (p. 215). Similarly, Yang et al. (2024) emphasize that national smart education policies provide a guiding framework for integrating the SDGs into the educational process (p. 7).Inclusive design and equity are also fundamental theoretical considerations. Kameni and Koumetio (2023) highlighted that “inclusive educational technologies can transform African cities into equitable smart cities” (p. 3). This perspective underscores that smart planning must not only focus on efficiency and innovation but also ensure access and fairness for all learners.

Practical applications of smart planning theories include financial, administrative, and infrastructural dimensions. Harhab and Santosa (2024) found that "effective management of education funds through smart methods significantly improves school quality" (p. 168), while Hassan et al. (2024) demonstrated that the integration of enterprise resource planning (ERP) systems, blockchain, the Internet of Things (IoT), and cloud computing enables the creation of comprehensive management information systems. These applications illustrate how theory can be translated into practical strategies that enhance both operational and educational outcomes.

Finally, global and contextual considerations highlight the adaptability of smart educational planning. Tran and Tran (2022) noted that "effective implementation of smart education requires adapting lessons learned to local contexts" (p. 237). In parallel, Mazza (2021) asserted that "the 2030 Agenda links education to sustainable urban development" (p. 26). Together, these ideas suggest that theoretical models for smart educational planning must balance technological innovation, strategic alignment, inclusiveness, and sustainability while maintaining flexibility in diverse local and global contexts.

Gaps in the Literature

Despite the growing research on the adoption of digital technology in education, gaps remain in the literature, particularly with regard to vocational and technical education. First, most studies have focused on higher education or general education, leaving vocational and technical programs understudied, despite these fields' significant reliance on practical, skills-based learning. Second, there is a notable lack of research in the Palestinian and broader Arab context, where cultural, economic, and technological factors may uniquely influence technology acceptance. Third, many studies have relied exclusively on the Technology Acceptance Model (TAM), focusing on perceived usefulness and ease of use, neglecting other vital dimensions such as digital literacy, institutional support, and intrinsic motivation. Fourth, there is a lack of large-scale, survey-based empirical research that captures the diverse perspectives of students in vocational and technical programs. Fifth, the literature has paid limited attention to how digital technologies impact practical learning, simulation, and practical skill acquisition. Sixth, most research has relied on cross-sectional designs, limiting our understanding of how technology acceptance develops over time or across different stages of study. Seventh, the relationship between technology acceptance and actual learning outcomes has not been sufficiently studied, as previous studies have often focused solely on behavioral intentions. Finally, the sociocultural influences on students' willingness to adopt technology have not been adequately explored, leaving a gap in understanding the broader contextual factors that shape digital technology integration.

The originality of the present study

This study is original and important for several reasons. First, it focuses specifically on **vocational and technical education**, a field that has received insufficient attention in the literature despite its strong reliance on practical, skills-based learning. Second, it is conducted in the **Palestinian context**, addressing a gap in scientific research predominantly dominated by Western and Asian contexts, offering insights into the unique cultural, economic, and technological factors of this region. Third, the study integrates multiple theoretical perspectives—including the technology acceptance model, digital literacy, and constructivist approaches—to provide a more comprehensive understanding of technology acceptance beyond the traditional technology acceptance model. Fourth, the study uses a **large-scale survey-based methodology** to collect diverse student perceptions, lending the findings robustness and generalizability. Fifth, the study examines not only students' behavioral intentions but also the potential impact of digital technologies on **practical learning and skill acquisition**, offering practical insights for educational practice. Finally, by exploring social, psychological, and institutional factors together, the research provides a **comprehensive view of digital technology adoption**, contributing to the development of sustainable strategies for integrating technology into vocational and technical education.

Purpose of the Study

The purpose of the study is to examine the Acceptance of Digital Technologies in Vocational and Technical Education, to acknowledge if there are statistical differences due to Gender, College, Scientific qualification, Nature of work, Years of Experience.

Research Question

The Main Question: what is the Acceptance level of Digital Technologies in Vocational and Technical Education?

Based on the main question the following sub-question formed:

Is there a difference in the Acceptance level of Digital Technologies in Vocational and Technical Education due to Gender, Scientific qualification, Nature of school, Years of Experience?

Study Hypothesis:

1. There are no statistically significant differences at ($\alpha \leq 0.05$) of Digital Technologies Acceptance level in Vocational and Technical Education due to gender.
2. There are no statistically significant differences at ($\alpha \leq 0.05$) of Digital Technologies Acceptance level in Vocational and Technical Education due to Place of residence.
3. There are no statistically significant differences at ($\alpha \leq 0.05$) of Digital Technologies Acceptance level in Vocational and Technical Education due to Degree.
4. There are no statistically significant differences at ($\alpha \leq 0.05$) of Digital Technologies Acceptance level in Vocational and Technical Education due to College.
5. There are no statistically significant differences at ($\alpha \leq 0.05$) of Digital Technologies Acceptance level in Vocational and Technical Education due to Academic level.

4. Methodology

4.1 Research Design

This study employs a **descriptive-analytical research design** to examine students' acceptance of digital technologies in vocational and technical education at Palestine Technical University – Kadoorie. A **quantitative approach** is adopted, utilizing a structured **survey questionnaire** as the primary data collection tool. The questionnaire is designed to measure key constructs, including **perceived usefulness, perceived ease of use, digital literacy, and attitudes and motivation toward technology use.**

4.2 Population and Sample

The study targets students enrolled in various vocational and technical programs **Palestine Technical University – Kadoorie** during the academic year 2024/2025, totaling **2,300 students. Using a stratified random sampling technique**, 690 students were selected to ensure representation across gender, academic level (first to fourth year), and college disciplines (Media, Arts, Sports, Business Management, and Computer Science). This sample size is statistically adequate according to Krejcie and Morgan's (1970) table for determining sample size, providing confidence in the generalizability of the findings within the institution. Table (1) presents the distribution of the study variables among the sample:

Table 1 – *Sample descriptive & distribution by demographic variables*

	Variables	Frequency	Percent
Gender	Male	280	41%
	Female	410	59%
Place of residence	Camp	130	19%
	Village	350	51%
	City	210	30%
degree	Diploma	240	35%
	Bachelor's	450	65%
Collage	Media	42	6%
	Arts	57	8%
	Sports	60	9%
	Business Management	460	67%
	Computer science	71	10%
Academic Level	First	290	42%
	second	146	21%
	third	134	19%
	fourth	120	17%

4.3 Research Instrument

The primary research instrument used in this study is a **structured questionnaire,** developed to collect quantitative data on students' acceptance of digital technologies in vocational and technical education. The questionnaire consists of several sections designed to capture demographic information (such as gender, academic level, and program of **study) as well as constructs related to the research framework,**

including perceived usefulness**,** perceived ease of use**,** digital literacy**,** attitudes toward technology**, and** behavioral intention to use digital tools**.**

4.4 Validity and Reliability

To ensure validity and reliability, the instrument was undergo expert review for content validity and a pilot test with a small sample of students prior to full-scale data collection. Necessary revisions was made based on feedback to improve clarity, accuracy, and appropriateness. This structured instrument provides a systematic and standardized way to gather data, allowing for robust analysis of the factors influencing students' acceptance of digital technologies. **Reliability assessed using** Cronbach's alpha **to confirm internal consistency, with a value of 0.79.**

4.5 Data Collection and Ethical Considerations

Data collection occurred through electronically distributed questionnaire to ensure convenience and timely responses. Participation is voluntary, and all respondents were informed about the purpose of the study, confidentiality, and anonymity. Ethical approval was obtained from the sample members. The data collected through the survey questionnaire analyzed using both descriptive and inferential statistical techniques. Descriptive statistics, such as frequencies, percentages, means, and standard deviations, employed to summarize participants' demographic characteristics and to provide an overview of their responses to the main study variables, including perceived usefulness, perceived ease of use, digital literacy, and attitudes toward technology.

4.6 Data Analysis

All data analyzed using the Statistical Package for the Social Sciences (SPSS), which ensures accuracy and reliability in data processing. The analysis provide a clear understanding of the patterns, associations, and determinants of digital technology acceptance in vocational and technical education. Inferential statistics conducted to examine relationships and differences among variables. Techniques such as t-tests, ANOVA, analysis used to determine whether students' acceptance of digital technologies differs significantly across demographic groups, including gender, academic level, and program of study.

5. Results and Discussion

To determine Work stresses effect on job satisfaction of English language teachers, and in order to interpret the results, the following arithmetic means and percentages were adopted:

An arithmetic means of (1.8–2.59) or (36–51.9%) indicates a low score.

The mean (2.60 – 3.39) or (52 – 67.9 %) indicates a Moderate score.

An arithmetic means of (3.40 –4.19) or (68 – 83.9%) indicates a high degree.

Results related to the first question:

What is the Acceptance level of Digital Technologies in Vocational and Technical Education?

To answer this question, the researcher calculated the arithmetic means and standard deviations of the study sample's estimates of Digital Technologies Acceptance level in Vocational and Technical Education for each paragraph of the tool and for the total score. Table (2) shows that

Table (2): means, Std. Dev. and degrees of the items of the questionnaire.

#	Item	Mean	Std. Dev.	Degree
4	I believe that digital technologies enhance my academic performance.	4.14	1.04	High
3	Digital technologies make it easier to access educational resources and materials.	4.11	0.94	High
24	I will recommend using digital technologies to my classmates.	4.06	0.63	High
19	I trust the reliability of digital technologies used in education.	3.86	0.85	High
2	Using digital tools improves the quality of my learning.	3.85	1.03	High

23	I am willing to explore new digital platforms to support my learning.	3.85	0.40	High
9	I feel confident navigating online learning platforms and tools.	3.80	1.00	High
22	I intend to use digital tools even if they are not required by the course.	3.78	0.70	High
11	I can search, evaluate, and use online information effectively.	3.77	0.70	High
8	I can use most digital platforms without the help of others.	3.71	0.98	High
5	Using digital tools makes my learning experience more productive and meaningful.	3.69	0.64	High
14	I can solve common technical problems that may occur during online learning.	3.65	1.05	High
25	I consider digital technologies an essential part of my academic life.	3.62	0.90	High
7	Learning how to use new digital tools is simple for me.	3.60	1.04	High
10	Using digital technologies does not require much mental effort.	3.58	0.75	High
12	I know how to protect my personal data and digital identity online.	3.54	1.11	High
13	I can use different types of digital tools (e.g., learning platforms, applications, software).	3.48	0.92	High
18	I feel motivated to participate in lessons when digital tools are used.	3.48	1.05	High
6	I find digital technologies easy to use in my studies.	3.46	0.75	High
17	I believe technology makes the learning process more interesting and engaging.	3.46	1.11	High
16	I enjoy using digital technologies for learning purposes.	3.45	0.92	High

20	I believe that adopting digital tools is essential for modern learning.	3.42	1.04	High
1	Digital technologies help me complete learning tasks more efficiently.	3.22	0.89	Moderate
15	I keep up to date with new technologies relevant to my field of study.	3.22	0.89	Moderate
21	I plan to continue using digital technologies in my future studies.	3.15	0.91	Moderate
	Total	3.64	0.18	**High**

Results in table (2) show that Acceptance level of Digital Technologies in Vocational and Technical Education was High, with a mean of (3.64) over/out of (5).

Results related to the second question:

Is there a difference in the Acceptance level of Digital Technologies in Vocational and Technical Education due to Gender, Scientific qualification, Nature of school, Years of Experience?

To answer this question, the researcher investigated the following hypothesis:

Results related to the first Hypothesis:

There are no statistically significant differences at ($\alpha \leq 0.05$) of Digital Technologies Acceptance level in Vocational and Technical Education due to gender.

To test this hypothesis, the researcher used independent t-test as table (3) shows: The results of independent t-test for the differences in participant's responses related to Digital Technologies Acceptance level in Vocational and Technical Education due to gender.

Table (3): *Results of the independent t-test for gender variable.*

gender	Mean	Std. Dev.	Std. Error Mean	Sig.
male	3.7371	.54091	.03233	.000
female	3.5700	.50453	.02492	

The results in table (3) show that the significance level of the differences in participant's responses related to Digital Technologies Acceptance level in Vocational and Technical Education due to gender is (0.00) this means that there are statistically significant differences at (a<0.05), Thus, the hypothesis is rejected.

Results related to the second Hypothesis:

There are no statistically significant differences at ($\alpha \leq 0.05$) of Digital Technologies Acceptance level in Vocational and Technical Education due to Place of residence.

To test this hypothesis, the researcher used one-way ANOVA- test, table (4) shows: The results of one-way ANOVA- test for the differences in participant's responses related to Digital Technologies Acceptance level in Vocational and Technical Education due to Place of residence.

Table (4): Results of ANOVA- test for Place of residence variable.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9.673	2	4.837	18.387	.000
Within Groups	180.713	687	.263		
Total	190.386	689			

The results in this table (4) show that the level of significance for the differences in the participant's responses related to Digital Technologies Acceptance level in Vocational and Technical Education due to Place of residence is (0.00) this means that there are statistically significance differences at (a<0.05). Thus, the hypothesis rejected.

To find out which Place of residence achieved significant differences, the researcher used LSD test, table (5) shows: The results of LSD test for Place of residence

Table (5): Results of LSD test for Place of residence variable.

(I) L	(J) L	Mean Difference	Sig.
City	Village	.00315	.952
	Camp	.25960*	.000
Village	City	-.00315	.952
	Camp	.25646*	.000
Camp	City	-.25960*	.000
	Village	-.25646*	.000

The result in table (5) shows that the statistically significance differences were between City and Camp students in favor of Camp students, and between Village and Camp students in favor of Camp students.

Results related to the third Hypothesis:

There are no statistically significant differences at ($\alpha \leq 0.05$) of Digital Technologies Acceptance level in Vocational and Technical Education due to Degree.

To test this hypothesis, the researcher used independent t-test as table (6) shows: The results of independent t-test for the differences in participant's responses related to Digital Technologies Acceptance level in Vocational and Technical Education due to Degree.

Table (6): Results of the independent t-test for Degree variable.

Degree	Mean	Std. Dev.	Std. Error Mean	Sig.
Diploma	3.5863	.58798	.03795	0. 076
Bachelor's	3.6653	.48767	.02299	

The results in table (6) show that the level of significance for the differences in participant's responses related to Digital Technologies Acceptance level in Vocational and Technical Education due to Degree is (0.076) this means that there are no statistically significant differences at (a<0.05), Thus, the hypothesis is accepted.

Results related to the fourth hypothesis:

There are no statistically significant differences at ($\alpha \leq 0.05$) of Digital Technologies Acceptance level in Vocational and Technical Education due to College.

To test this hypothesis, the researcher used one-way ANOVA- test, table (7) shows: The results of one-way ANOVA- test for the differences in participant's responses related to of Digital Technologies Acceptance level in Vocational and Technical Education due to College.

Table (7): Results of the independent t-test for College variable.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.950	4	.487	1.772	.133
Within Groups	188.436	685	.275		
Total	190.386	689			

The results in this table (7) show that the level of significance for the differences in the participant's responses related to of Digital Technologies Acceptance level in Vocational and Technical Education due to College is (0.133) this means that there are no statistically significance differences at (a<0.05). Thus, the hypothesis accepted.

Results related to the fifth hypothesis:

There are no statistically significant differences at ($\alpha \leq 0.05$) of Digital Technologies Acceptance level in Vocational and Technical Education due to Academic level.

To test this hypothesis, the researcher used one-way ANOVA- test, table (8) shows: The results of one-way ANOVA- test for the differences in participant's responses related to Digital Technologies Acceptance level in Vocational and Technical Education due to Academic level.

Table (8): Results of ANOVA- test Academic level variable.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.071	3	1.357	4.996	.002
Within Groups	186.315	686	.272		
Total	190.386	689			

The results in table (8) show that the level of significance for the differences in participant's responses related to Digital Technologies Acceptance level in Vocational and Technical Education due to Academic level is (0.002) this means that there are statistically significant differences at (a<0.05). Thus, the hypothesis is rejected.

To find out which Academic level achieved significant differences, the researcher used LSD test, table (9) shows: The results of LSD test for Academic level

Table (9): Results of LSD test for Academic level variable.

(I) L	(J) L	Mean Difference	Sig.
first	second	.08177	.122
	third	-.11963*	.028
	fourth	-.11130*	.050
second	first	-.08177	.122
	third	.03786	.544
	fourth	-.19307*	.003
third	first	.11963*	.028
	second	-.03786	.544
	fourth	-.23093*	.000
fourth	first	.11130*	.050
	second	.19307*	.003
	third	.23093*	.000

The result in table (9) shows that the statistically significance differences were between first and third level students in favor of third level students, and between first and forth level students in favor of first level students, and between second and forth level students in favor of second level students, and between third and fourth level students in favor of third level students.

Conclusion

The study results showed that Digital Technologies Acceptance level in Vocational and Technical Education was high, with a mean of (3.64) over/out of (5). The result also revealed that there were statistically significant differences in due to gender, place of residence, and academic level, however, it shows that there were no statistically significant differences in due to degree, and college.

Dissection of the results of the study

1. The researcher attributed The high Digital Technologies Acceptance level in Vocational and Technical Education to the following:

- First, students in vocational and technical programs often engage in practical, applied learning, which naturally aligns with the use of digital tools and applications, making technology an integral part of their educational experience.
- Second, the tangible usefulness and ease of use of these technologies boost students' confidence and motivation, encouraging them to integrate digital tools into their daily academic activities.
- Third, many students have acquired a high level of digital literacy through formal education and personal experience, enabling them to effectively use digital platforms.
- Fourth, the increasing availability of digital infrastructure—such as internet access, smart devices, and e-learning platforms—has made it easier for students to rely on technology as a primary source of learning and communication.
- Fifth, positive attitudes toward technology reflect a cultural shift in students' perceptions of learning; they no longer view digital tools as mere aids, but as essential components of modern education.
- Sixth, the flexibility and accessibility provided by digital technologies support diverse learning styles and allow students to learn at their own pace.
- Finally, institutional efforts to integrate digital technologies into professional curricula played a crucial role in shaping students' acceptance. When technology is systematically integrated into curricula, students develop routine usage patterns, which reinforce their behavioral intentions and long-term adoption. This combination of personal, technological, and institutional factors explains the high level of digital technology acceptance observed in this study.

2. The researcher attributed that there were statistically significant differences related to Digital Technologies Acceptance level in Vocational and Technical Education due to gender to the following:

- First, differences in exposure to digital tools may have contributed to the disparity between male and female students, as some may have had greater opportunities to interact with technology outside of the classroom.

- Second, gender-related differences in self-confidence and self-efficacy in using technology may influence perceived ease of use, a key indicator of technology acceptance.

- Third, sociocultural factors may influence how male and female students perceive and interact with technology, with some groups feeling more encouraged or supported to develop digital skills.

- Fourth, in some contexts, male students may have greater access to technical fields and resources, which may lead to greater familiarity with and comfort with digital tools. Conversely, female students may exhibit stronger attitudes toward collaborative and communicative uses of technology, which may also explain differences in acceptance patterns.

- Finally, these differences highlight the importance of ensuring equal access, training, and support for all students, regardless of gender, to promote equitable digital inclusion in vocational and technical education. Addressing such disparities would enhance students' confidence, skills, and overall acceptance of digital technologies, creating a more inclusive and effective learning environment.

3. The researcher attributed that there were statistically significant related to Digital Technologies Acceptance level in Vocational and Technical Education due to Place of residence, the statistically significance differences were between City and Camp students in favor of Camp students, and between Village and Camp students in favor of Camp students. to the following:

    - Camp students showed higher acceptance compared to urban and rural students. This pattern may be explained by the targeted educational initiatives or programs available in the camps, which can provide students with more structured exposure to digital technologies and training opportunities.

- In addition, camp students may rely more on digital tools for learning and communication due to limited access to alternative educational resources, increasing their familiarity with and positive attitudes toward technology.

- In contrast, urban and rural students may have more diverse options and less focused interaction with digital platforms, which may result in slightly lower levels of technology acceptance.

- These findings suggest that place of residence, along with the availability of resources, institutional support, and reliance on digital tools, plays an important role in shaping students' acceptance of digital technologies. Education planners should consider tailored interventions to ensure that all students, regardless of place of residence, have equal opportunities to develop digital skills and participate.

4. The researcher attributed that there were no statistically significant differences related to Digital Technologies Acceptance level in Vocational and Technical Education due to Degree to the following:

   - First, students at different academic levels generally receive similar exposure to digital tools and platforms as part of their professional and technical curricula, which unifies their experiences and perceptions.

   - Second, the integration of technology into the learning process appears to be consistent across all levels, ensuring that students—both in introductory and advanced programs—develop similar skills, attitudes, and familiarity with digital technologies.

   - Third, the widespread availability of institutional support and resources, such as computer labs, e-learning platforms, and technical assistance, provides equal opportunities for all students to engage effectively with technology.

   - Finally, the findings indicate that, in this context, acceptance of digital technologies is influenced more by personal, social, and environmental factors (such as gender, location, and digital literacy) than by degree or academic level itself. This suggests that educational interventions to promote technology adoption should focus on these influencing factors rather than focusing solely on students' academic progress.

5. The researcher attributed that there were no statistically significant differences related to Digital Technologies Acceptance level in Vocational and Technical Education due to College to the following:

- First, all faculties within the university appear to consistently integrate digital technologies into their curricula, providing students from different faculties with similar exposure and experience.
- Second, students, regardless of their faculty or program, have access to shared institutional resources, such as e-learning platforms, computer labs, and technical support, ensuring equal opportunities to interact with digital tools.
- Third, faculty policies and teaching strategies related to technology use are likely to be standardized across the university, resulting in similar learning environments and student attitudes toward digital technologies.
- Finally, these findings suggest that, in this context, students' acceptance of digital technologies is more influenced by individual, social, and environmental factors—such as gender, place of residence, and digital literacy—than by their specific faculty or academic major. This underscores the importance of focusing on these broader factors when designing interventions to promote technology adoption.

6. The researcher attributed that there were statistically significant differences related to Digital Technologies Acceptance level in Vocational and Technical Education due to academic level, the statistically significance differences were between first and third level students in favor of third level students, and between first and forth level students in favor of first level students, and between second and forth level students in favor of second level students, and between third and fourth level students in favor of third level students. to the following:

- Level 3 students showed higher acceptance than Level 1 students, attributed to their increased exposure to digital tools and practical projects that enhance familiarity, skills, and confidence in using technology.
- Interestingly, Level 1 students showed higher acceptance than Level 4 students in some aspects, perhaps due to their recent exposure to updated digital platforms or

introductory courses focused on technology integration, which made them more enthusiastic about using it. Additionally, Level 2 students showed higher acceptance than Level 4 students, reflecting that intermediate students may benefit from basic and intermediate technology-related courses that combine innovation and skill development.

- Finally, Level 3 students showed higher acceptance than Level 4 students, suggesting that engagement with technology may peak at certain stages of academic progress when students engage in intensive practical applications before completing their programs. Overall, these findings highlight that students' acceptance of digital technologies is dynamic and influenced by the nature of the curriculum, exposure to digital tools, and the specific requirements of each academic level, indicating the need for tailored strategies to maintain consistent adoption of technology at all levels.

Limitations of the study:

The current study has the following limitations:

1. This population study consisted of Palestine technical university students.
2. The study carried out in the academic year (2024-2025) at the First semester.
3. The study was limited by the concepts and definitions mentioned in it.

Recommendations:

In light of the findings, the researcher recommended the following to promote the acceptance and effective use of digital technologies in vocational and technical education:

1. **Improving digital literacy programs:** Institutions should provide ongoing training and workshops to enhance students' digital skills and ensure their ability to confidently use various technological tools and platforms.
2. **Promoting equal access to technology:** Efforts should be made to reduce disparities related to place of residence and gender by ensuring equal access to devices, internet connectivity, and digital learning resources for all students.

3. **Integrating technology into all curricula:** Digital tools should be systematically integrated into all levels of vocational and technical programs, allowing students to gradually develop their skills as they progress academically.
4. **Promoting positive attitudes toward technology:** Instructors should emphasize the benefits and practical applications of digital technologies, which will enhance student motivation and positive impressions.
5. **Providing institutional support:** Universities should maintain and expand their technical support services, including help desks, online guides, and available training materials, to help students overcome the challenges of using technology.
6. **Tailoring interventions to specific student groups:** Special attention should be given to students with low levels of technology acceptance, such as those in rural areas or at specific academic levels, through targeted workshops and mentoring programs.
7. **Monitoring and evaluating technology use:** Institutions should regularly assess students' patterns of technology acceptance and use to identify gaps, track progress, and develop digital integration strategies.
8. **Promoting collaborative and innovative use of technology:** Programs should include group projects and practical assignments that leverage digital tools, enhancing student engagement, problem-solving skills, and hands-on learning experiences.

These recommendations aim to promote the equitable, effective, and sustainable integration of digital technologies into career and technical education, supporting students' academic success and future career opportunities.

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