Pak. j. life soc. Sci. (2025), 23(1): 466-484 E-ISSN: 2221-7630;P-ISSN: 1727-4915

Pakistan Journal of Life and Social Sciences
www.pjlss.edu.pk

https://doi.org/10.57239/PJLSS-2025-23.1.0037

RESEARCH ARTICLE

The Reality of Electronic Academic Supervision of Graduate Students in Palestinian Universities from the Perspective of Faculty Members in Palestinian Universities

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ARTICLE INFO

Received: Sep 11, 2024

Accepted: Nov 24, 2024

Keywords

Electronic academic supervision
Postgraduate students
Palestinian universities.

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ABSTRACT

The current study aimed to explore the reality and challenges of electronic academic supervision for postgraduate students in Palestinian universities from the perspective of faculty members. A mixed-methods approach, combining quantitative and qualitative methodologies through interviews, was utilized to achieve the study objectives. The study population consisted of 500 faculty members in Palestinian universities. A stratified random sample of 218 academic faculty members was selected from universities representing the study population, namely Al-Quds Open University, the Arab American University, and Palestine Technical University - Kadoorie, constituting 41.6% of the total population. Surveys were distributed to all sampled participants, and interviews were conducted with 10 faculty members from the three universities. To collect the required data, a questionnaire and interviews were developed. The results revealed a high level of electronic academic supervision practices for postgraduate students in Palestinian universities, with no statistically significant differences based on gender or years of experience. The quantitative analysis emphasized the widespread practice of electronic academic supervision, which was corroborated by the qualitative analysis, highlighting the support for technology use and the enhancement of the supervisor-student relationship.

INTRODUCTION

The world is experiencing rapid advancements across various fields. Knowledge and technology have introduced vast amounts of information and advanced tools that rely on computer and communication technologies, making communication effortless in terms of time and space. These advancements span economic, political, social, and cultural domains, as well as education, enabling teachers and students to communicate and access information with speed and precision.

According to Al-Asili (2013) and Amer (2015), Palestinian universities are striving to transition toward e-learning, identifying electronic academic supervision and educational technology as essential components of this transformation. The researchers highlight that Palestinian universities utilize technology to create interactive classroom environments, allowing students to attend virtual meetings and participate in various online classroom activities. This significant progress in academic and administrative practices underscores the necessity of electronic academic supervision as an integral part of the educational process.

To promote open self-learning online, Palestinian universities have developed infrastructure and incorporated digital tools to enhance teaching and learning through technology. They have also initiated extensive campaigns to modernize learning environments, with electronic academic supervision emerging as a central focus in their pursuit of effective e-learning practices (Al-Kindi, 2018).

Electronic academic supervision aims to create a conducive educational environment that supports students in achieving their academic and research objectives. It also seeks to guide students through the scientific research process, offering essential advice and direction to ensure optimal outcomes while providing the necessary academic support throughout various stages of their graduate studies (Al-Nasiri, 2019).

Dawoud (2018) emphasizes that the effective implementation and enhancement of digital supervision require the active utilization of modern technologies and electronic tools, including email, chat applications, and educational management platforms. These technologies are complemented by video platforms, interactive video technologies for training programs, and electronic menu services. For supervisors to perform their roles effectively, they must balance personal aspects—such as valuing and respecting students, understanding their emotions and privacy—and formal aspects, such as providing guidance, encouraging critical discussions, and facilitating the development of conclusions. The importance of this relationship is evident in the academic supervisor's role in supporting postgraduate students with their research and dissertations.

The above highlights that electronic academic supervision is a highly effective method for enhancing the educational supervision process. It reduces the effort and time required, addresses challenges faced by faculty members, lowers the student-to-supervisor ratio, and enables the swift and efficient delivery of updates and guidance. Furthermore, electronic academic supervision fosters the exchange of experiences and interactions between faculty members and graduate students, particularly those in the research phase. This structured process operates under established rules, principles, and regulations, defining the interactions between faculty and students and ensuring a multifaceted approach to supervision.

Given the importance of electronic academic supervision in monitoring graduate students in Palestinian universities, this study seeks to examine its current status from the perspective of faculty members in Palestinian universities.

Problem Statement:

In light of the rapid digital transformation within educational institutions, universities must prioritize the development of electronic supervision methods. These methods are crucial for enhancing effective communication between supervisors and students and for creating a flexible educational environment that supports continuous learning. Electronic supervision improves the quality of academic follow-up, offers essential support to students, and facilitates educational interaction through advanced platforms. However, some studies highlight challenges faced by universities in fully adopting these methods, underscoring the need for increased efforts to strengthen supervisors' capabilities and provide the necessary technological infrastructure to support these systems effectively.

Electronic academic supervision for graduate students plays a pivotal role in ensuring quality and academic success. With the advancement of technology and the widespread use of the Internet, the demand for adopting electronic academic supervision as an effective tool to support graduate students has grown significantly. This is particularly true for universities that encounter challenges in direct communication between students and faculty members. Beyond leveraging technical capabilities to deliver knowledge, electronic academic supervision offers graduate students significant opportunities for sustained communication with faculty and peers, fostering a collaborative learning environment.

Drawing from the researcher’s experience as an official at the Deanship of Graduate Studies and Scientific Research at Al-Quds Open University, notable progress has been observed in electronic academic supervision and a persistent effort to improve this process within Palestinian universities. Despite these advancements, challenges persist. Some faculty members do not sufficiently follow up with their students through electronic means, resulting in ineffective academic guidance. This

shortfall negatively impacts the quality of scientific research and hinders students' progress during their graduate studies.

Previous studies also underscore the need for enhancements in electronic academic supervision. For instance, Amr (2021) recommended the development of a strategic plan aligned with technological advancements and evolving circumstances to ensure the continuity of education. Similarly, Suhail and Musleh (2016) emphasized the importance of improving faculty members' skills in electronic supervision and providing adequate support to facilitate effective communication between students and faculty members.

Study Questions:

The following questions were derived from the study problem:

1. What are the practices of electronic academic supervision for graduate students in Palestinian universities from the perspective of faculty members?
2. Are there differences in the arithmetic averages of faculty members' responses regarding the practice of electronic academic supervision for graduate students in Palestinian universities due to study variables (gender and years of experience)?

Study Objectives:

The study aimed to achieve the following objectives:

1. To identify the current state of electronic academic supervision for graduate students in Palestinian universities from the perspective of faculty members.
2. To examine differences in the arithmetic averages of faculty members' responses regarding the reality of electronic academic supervision for graduate students in Palestinian universities based on study variables (gender and years of experience).

Importance of the Study:

Theoretical (Scientific) Importance:

The significance of this study lies in its focus on developing a proposed strategy to enhance the quality of electronic academic supervision in Palestinian universities for graduate students. The study aims to produce findings that contribute a qualitative addition to the research efforts of the Arab American University and enrich the academic library, particularly given the scarcity of research on this topic amidst the growing need to improve the quality of higher education outcomes.

Electronic academic supervision represents a vital pillar in advancing higher education and enhancing the quality of scientific research in Palestine. Moreover, this study sheds light on an important yet underexplored aspect of Arab scientific research—electronic academic supervision in universities. Additionally, the study seeks to provide a theoretical contribution to the existing literature on academic supervision and its impact on students' development and academic progress.

Study Limitations:

The study was conducted within the following limits:

1. **Objectivity:** The study focused on the reality of electronic academic supervision for graduate students in Palestinian universities from the perspective of faculty members.
2. **Human limitations:** The study was limited to a sample of faculty members at Palestinian universities, specifically Al-Quds Open University, the Arab American University, and Palestine Technical University - Kadoorie.
3. **Time limits:** The study was conducted during the 2023-2024 academic year.

4. **Spatial limitations:** The study encompassed Palestinian universities, including Al-Quds Open University, the Arab American University, and Palestine Technical University - Kadoorie.
5. **Conceptual limitations:** The study was confined to the concept of electronic academic supervision.

THEORETICAL FRAMEWORK AND PREVIOUS STUDIES:

Many Palestinian universities have experimented with implementing e-learning and electronic academic supervision. Given the importance of developing education in general, and university education in particular, these issues are widely discussed in the educational community. Many educators have emphasized the necessity of improving university education and supervision by utilizing modern technology, particularly e-learning and electronic supervision. This approach has been recommended by numerous studies. In Palestine, education holds a significant place among all societal segments, especially under occupation, as the educated individual is viewed as an invaluable asset (Al-Moubayed, 2020).

The concept of electronic academic supervision began to gain traction in the 1990s and became increasingly prevalent in the 2000s. During the 1990s, universities adopted email and chat platforms for communication with graduate students. The first decade of the 21st century witnessed substantial advancements in technology, leading to the evolution of e-learning and distance communication platforms. Universities began utilizing learning management systems such as Blackboard and Moodle to create virtual learning environments. Currently, universities and educational institutions increasingly rely on electronic academic supervision techniques, including online conferencing tools like Zoom and Google Meet, to facilitate individual meetings and discussions with students (Jadallah, 2012).

The rationale for adopting electronic academic supervision lies in its ability to provide an effective and suitable method of communication and follow-up between supervisors and researchers, particularly under challenging circumstances and restrictions. This approach ensures the continuity of educational and research processes while offering opportunities for self-directed learning and professional development for researchers through modern technologies and accessible electronic resources.

Electronic academic supervision fosters a stimulating and conducive educational and research environment that enhances researchers' capabilities and skills. It promotes collaboration and knowledge exchange between researchers and supervisors by leveraging social media networks and other electronic platforms. Moreover, it enables supervisors to monitor researchers' progress continuously and effectively, offering essential support and guidance in their academic and professional journeys. Furthermore, it provides opportunities for supervisors to enhance their skills and competencies in utilizing modern technologies for supervising researchers (Mahbub, 2021).

In the field of higher education, supervising graduate students in universities is a fundamental responsibility of academics and serves as an indicator of academic productivity. The significance of supervision extends beyond merely imparting research skills; it involves intensive and continuous interaction between the student and the supervisor. The supervisor plays a vital role in creating a supportive, helpful, and interactive supervisory environment, fostering the development of future generations of researchers equipped with the knowledge and skills to meet professional demands. Effective supervision is grounded in the principle that an experienced supervisor can significantly contribute to a student's growth through tailored learning processes. As students master fundamental research skills in a specific field, they progress toward a deeper comprehension of the field's nature and dynamics (Van Rensburg et al., 2016).

Al-Jaji (2023) conducted a study evaluating the quality of academic supervision for graduation research via the electronic portal at the Deanship of E-Learning and Distance Education, University of Science and Technology, Yemen. The study defined quality standards and analyzed the content of conversations between students and supervisors to determine the extent to which these standards

were met. Using a mixed-methods approach and content analysis, the study included a sample of 41 students. Key findings indicated that the quality of academic supervision was average. Among the criteria assessed, flexibility in communication ranked highest, followed by clarity of instructions and continuity of communication.

Al-Omari (2023) examined the effectiveness of academic supervision of scientific theses and research projects at the Islamic University of Medina, as perceived by faculty members. Data were collected via a questionnaire administered to a random sample of 210 faculty members and analyzed using descriptive and analytical methods. Results revealed a high degree of agreement among faculty members on strategies to improve supervision. Additionally, no statistically significant differences were observed in faculty members' responses regarding academic degree or supervision experience.

Al-Moeed (2022) explored the role of electronic academic supervision conducted by scientific supervisors at King Khalid University during the COVID-19 pandemic, focusing on the humanitarian, administrative, and scientific supervisory roles based on gender variables. Employing a descriptive analytical approach, the study included 196 male and female students and used a scale to evaluate the electronic supervisory role. Findings revealed that the electronic supervisory role of university professors exceeded the hypothesized average in humanitarian and scientific domains but fell below average in administrative responsibilities. No statistically significant differences were noted in the scientific and humanitarian supervisory roles concerning gender.

Mahboob (2021) investigated the reality of electronic academic supervision amid the COVID-19 crisis from the perspective of faculty members. The study also analyzed differences in faculty responses regarding the effectiveness of electronic supervision and its alignment with empirical psychological research outcomes in Saudi universities, both actual and anticipated. The descriptive study included a sample of 52 faculty members from King Abdulaziz, King Khalid, Taiba, Jazan, and Umm Al-Qura universities. A questionnaire was utilized to collect data. Results showed that the perceived effectiveness of electronic supervision was high in practice and even higher in expectations.

Yende (2021) assessed the effectiveness of communication and collaboration between academic supervisors and postgraduate students across several South African universities. Using a descriptive approach, the study encompassed a comprehensive sample of 30 postgraduate students, 10 graduates, and 10 academic supervisors from four universities. Personal interviews were conducted with all participants. Findings highlighted a significant gap in the student-supervisor relationship, with students expressing a strong desire for more guidance and support in their research endeavors.

Study Methodology:

In light of the study's nature and objectives, the current study adopted a mixed-methods approach. This approach integrates the collection and analysis of both quantitative and qualitative data within a single study. The quantitative data were gathered using a questionnaire, while qualitative data were collected through in-depth interviews.

Study Population and Sample:

The study population comprised all individuals relevant to the study's subject, represented by faculty members involved in postgraduate studies at Palestinian universities, including Khadouri University, Al-Quds Open University, and the Arab American University. The total population consisted of 500 faculty members.

To achieve the study's objectives, a sample was selected from the population. A stratified random sampling technique was employed to select participants for the quantitative phase, resulting in a sample of 218 faculty members from postgraduate studies in Palestinian universities. Additionally, a purposive sample of 10 faculty members was selected to participate in the qualitative interviews, aimed at answering the study's interview questions. Table 1: Distribution of the study sample according to demographic variables.

Table (1): Distribution of the study sample according to demographic variables.

Study variables	Categories	Repetition	Percentage
Gender	male	178	81.7%
	feminine	40	18.3%
Years of experience	Less than 5 years	23	10.6%
	From 5-10 years	37	17.0%
	10 years and more	158	72.5%
Grand total		**218**	**100.0%**

Study tools:

The study utilized the **Electronic Academic Supervision Practice Scale** and incorporated the **individual interview tool**. Below is a detailed description of these tools and the procedures undertaken for their development and validation.

The first tool: electronic academic supervision practice scale

A scale was developed to measure the degree of practice of electronic academic supervision for graduate students in Palestinian universities by faculty members. This scale was designed to align with the study's objectives, methodology, and population. The scale was constructed based on a review of previous studies related to the subject, such as Al-Jaji (2023), Al-Moeed (2022), and Mahboob (2021). These studies were examined alongside their respective questionnaires. Additionally, feedback from experts and specialists in the field was incorporated to enhance the scale's relevance and accuracy. In its initial form, the scale consisted of 33 items.

Validity of the Electronic Academic Supervision Practice Scale:

To ensure the validity of the study tools, the following indicators were examined:

A. Expert Review for Validity

To verify the apparent validity of the scale, it was presented in its initial form to a group of 10 reviewers from faculty members specializing in educational administration and leadership in Palestinian universities. All reviewers were experienced professionals holding doctoral degrees. The comments and suggestions provided by the reviewers were carefully considered. Linguistic adjustments were made to some items, four items were removed, and items that received unanimous approval from the reviewers were retained without modification.

The final version of the tool consisted of 29 items distributed across four dimensions:

1. Encouraging electronic use (8 items)
2. Directing and planning (7 items)
3. Monitoring progress and development (9 items)
4. Encouraging participation and communication (5 items)

Reliability of the Electronic Academic Supervision Practice Scale:

To ensure the reliability of the study tools, they were applied to a pilot sample consisting of 30 faculty members from the study population but outside the target sample. Internal consistency reliability was measured using the Cronbach's Alpha coefficient, which evaluates the consistency of individual responses across the questionnaire items. Table (4) presents the values of the Cronbach's Alpha coefficients.

Table (4) Cronbach Alpha internal consistency coefficients for the study tool

Tool/Part	Tool dimensions	Cronbach alpha	Number of paragraphs
	Encouraging electronic use	0.807	8

Tool/Part	Tool dimensions	Cronbach alpha	Number of paragraphs
Practicing electronic academic supervision	Directing and planning	0.835	7
	Monitoring progress and development	0.887	9
	Encouraging participation and communication	0.774	5
	Total	**0.919**	**29**

Table (4) shows the internal consistency reliability coefficients (Cronbach's Alpha) for the Electronic Academic Supervision Practice Scale. The Cronbach's Alpha coefficients for the individual dimensions ranged between 0.774 and 0.887, while the overall reliability coefficient for the entire scale was 0.919. These values are considered robust and suitable for the purposes of the current study, as indicated by previous research.

Scoring the Study Scale:

The study tool was scored using a 5-point Likert scale. Each item was assigned one of five values: **strongly agree (5), agree (4), neutral (3), disagree (2), strongly disagree (1)**. These numerical values were used to assess responses to the scale items. For the purpose of interpreting the arithmetic means, the following equation was applied:

$$\frac{Maximum\ Value - Minimum\ Value}{Number\ of\ categories} = \frac{1-5}{3} = 1.33$$

Table (5) shows the standardized values used to interpret the arithmetic averages of participants' responses to the items on the study tool.

Table (5): Standard values used to assess the arithmetic means of individuals' responses to the items included in the study tool

Category	Arithmetic mean
Low	**1.00 –2.33**
Medium	**2.34 –3.67**
High	**3.68 – 5.00**

The second tool: interview

The semi-structured interview was utilized as a secondary tool to collect data that complements the group data obtained through the questionnaire. Its flexibility makes it advantageous, as it allows for the addition of questions during the interview, clarification of ambiguities—if any—to the participants, and even reordering questions based on the situation's demands. The interview questions encompassed a variety of open-ended inquiries, enabling participants to elaborate on the topic in detail. Specific objectives were established for the interview to guide the information-gathering process in alignment with the study questions. The interview items were designed after reviewing relevant literature, and a total of 10 interviews were conducted.

Validity of the interview:

To ensure the validity of the interview questions, a content validity approach was applied by presenting the initial draft of the interview to a panel of expert reviewers from Palestinian and Jordanian universities. This process aimed to confirm that the questions were suitable for their intended purpose and appropriately worded. Feedback from the reviewers was carefully incorporated into the final version. The interview form was structured into two sections: the first provided details about the participant and outlined the interview objectives, while the second included nine questions. These questions explored the current state of electronic academic supervision for graduate students in Palestinian universities, as perceived by faculty members, with the aim of developing a tailored supervisory strategy for Palestinian universities.

Dependability of the Interview

Dependability refers to the extent to which the same methodology and procedures used for data collection and analysis can yield consistent results if repeated, while accounting for the variability inherent in the rapid changes of social phenomena (Hajar, 2003). To enhance dependability, the researcher thoroughly described the study design, documenting every detail of the procedures used for data collection and analysis. This included outlining what was done, when, how, and why, ensuring that the study can be replicated by adhering to these procedures.

Dependability in qualitative research parallels reliability in quantitative analysis. It assesses the stability and consistency of results when the study is repeated under similar conditions. In qualitative research, dependability ensures that the processes of data collection and analysis remain credible and stable over time.

STUDY RESULTS AND DISCUSSION

Results Related to the First Question

The first question states: *"What is the degree of practice of electronic academic supervision for postgraduate students in Palestinian universities from the perspective of faculty members, aiming to develop a supervisory strategy for Palestinian universities?"*

To address this question, arithmetic means, standard deviations, ranks, and levels of appreciation were calculated for the study participants' responses regarding the practice of electronic academic supervision for postgraduate students in Palestinian universities. This analysis was conducted both overall and across the individual dimensions, with results presented in descending order based on the averages. Table (6) provides a detailed summary of these findings.

Table (6): The Arithmetic Means, Standard Deviations, Ranks, and Levels for the Practice of Electronic Academic Supervision of Postgraduate Students in Palestinian Universities from the Perspective of Faculty Members, Arranged in Descending Order

NNo.	Dimensions	Arithmetic mean	Standard deviations	Rank	Degree
1.	Encouraging electronic use	4.00	0.44	1	High
2.	Directing and planning	3.89	0.52	4	High
3.	Monitoring progress and development	3.91	0.54	2	High
4.	Encouraging participation and communication	3.90	0.61	3	High
Overall arithmetic mean		**3.93**	**0.42**	**High**	

It is evident from Table (6) that the degree of practicing electronic academic supervision for postgraduate students in Palestinian universities, as perceived by faculty members—towards developing a supervisory strategy for Palestinian universities as a whole—was rated as "high," with an arithmetic mean of (3.93) and a standard deviation of (0.42).

The dimensions were ranked as follows:

Encouraging electronic usage ranked first, with a "high" level of appreciation, an arithmetic mean of (4.00), and a standard deviation of (0.44).

Monitoring progress and development came second, with a "high" level of appreciation, an arithmetic mean of (3.91), and a standard deviation of (0.54).

Encouraging participation and communication ranked third, also rated as "high," with an arithmetic mean of (3.90) and a standard deviation of (0.61).

Directing and planning was ranked fourth and last, with a "high" level of appreciation, an arithmetic mean of (3.89), and a standard deviation of (0.52).

Furthermore, the arithmetic means, standard deviations, ranks, and levels of appreciation were calculated for the individual responses to each item within the sub-dimensions, yielding the following results:

First: Encouraging electronic use

Arithmetic Means, Standard Deviations, Ranks, and Levels of Responses to Items within the Dimension of Encouraging Electronic Use

The analysis considered the items in descending order based on their arithmetic means. Table (7) provides a detailed summary of the results, highlighting the average scores, standard deviations, ranks, and the level of appreciation for each item.

Table (7): Arithmetic Means, Standard Deviations, Ranks, and Ratings of Study Participants' Responses to Items within the Dimension of Encouraging Electronic Use, Arranged in Descending Order

#	Item	Arithmetic Means	Standard deviations	Rank	Degree
1	I encourage graduate students to take advantage of online resources to complete their scientific research.	4.59	0.55	1	High
2	I assist students in providing the necessary electronic scientific resource sites to support their research directions	4.55	0.57	2	High
5	I encourage students to search for new solutions in their fields of study.	4.48	0.64	3	High
6	I encourage my students to use multimedia to present their scientific research.	4.45	0.66	4	High
8	I encourage my students to use the Internet as the main source in their scientific research.	3.57	0.57	5	Medium
7	I train my students to use electronic applications in their scientific research.	3.55	0.69	6	Medium
3	I encourage students to participate in electronic workshops in the field of scientific research.	3.50	0.69	7	Medium
4	I encourage students to innovate in their fields of study electronically.	3.31	0.72	8	Medium
Arithmetic mean For the dimension as a whole		**4.00**	**0.44**	**High**	

Table (7) shows that the arithmetic means for the items under the dimension of "Encouraging Electronic Use" ranged between **3.31 and 4.59**, reflecting a rating from moderate to high across the items. For the dimension as a whole, the arithmetic mean was **4.00**, with a standard deviation of **0.44**, indicating a high rating overall. The item ranked first within this dimension was **Item (1)**: ***"I encourage graduate students to take advantage of online resources to complete their scientific***

research," which achieved an arithmetic mean of **4.59**, a standard deviation of **0.55**, and a high level of appreciation.This was followed by **Item (2)**: ***"I assist students in providing the necessary electronic scientific resource sites to support their research directions,"*** which recorded an arithmetic mean of **4.55**, a standard deviation of **0.57**, and a high rating. In the penultimate position was **Item (3)**, In the penultimate position was **Item (3)**: *"I encourage students to participate in electronic workshops in the field of scientific research,"* which had an arithmetic mean of **3.50**, a standard deviation of **0.69**, and a moderate rating. In the final position was **Item (4)**: *"I encourage students to innovate in their fields of study electronically,"* with an arithmetic mean of **3.31**, a standard deviation of **0.72**, and a moderate rating.

Second: Directing and planning

Arithmetic Means, Standard Deviations, Ranks, and Ratings of Responses to the Items within the Dimension of Direction and Planning

The analysis considered the items in descending order based on their arithmetic means. Table (8) illustrates the detailed results, including the means, standard deviations, ranks, and levels of appreciation for each item within this dimension.

Table (8): Arithmetic Means, Standard Deviations, Ranks, and Ratings of Study Participants' Responses to Items within the Directing and Planning Dimension, Arranged in Descending Order

#	Paragraph	Arithmetic averages	Standard deviations	Rank	Degree
11	I follow the progress of my students in carrying out their necessary scientific research at every stage	4.42	0.57	1	High
12	I follow the development of my students in providing the necessary guidance at every stage,	4.30	0.61	2	High
14	I help students determine the goals of their scientific research.	4.14	0.60	3	High
15	I help students develop plans to achieve the goals of their scientific research.	3.72	0.69	4	High
10	I work to guide my students in choosing the goals of their scientific research and developing plans to achieve them.	3.67	0.71	5	Medium
9	I guide graduate students in choosing their research topics.	3.56	0.77	6	Medium
13	I follow clear policies in directing students electronically	3.41	0.65	7	Medium
Arithmetic mean For the dimension as a whole		**3.89**	**0.52**	**High**	

Table (8) indicates that the arithmetic means for the items under the "Direction and Planning" dimension ranged between **3.41 and 4.42**, reflecting a moderate to high rating across the items. The dimension as a whole achieved an arithmetic mean of **3.89** and a standard deviation of **0.52**, signifying a high level of appreciation. The highest-rated item was **Item (11)**: *"I follow the progress of my students in carrying out their necessary scientific research at every stage,"* with a mean of **4.42**, a standard deviation of **0.57**, and a high level of appreciation. This was followed by **Item (12)**: *"I follow the development of my students in providing the necessary guidance at every stage,"* which recorded a mean of **4.30**, a standard deviation of **0.61**, and a high rating. In the penultimate position was **Item (9)**: *"I guide graduate students in choosing their research topics.,"* which had a mean of **3.56**,

a standard deviation of **0.77**, and a moderate rating. Finally, in the last position was **Item (13)**: *"I follow clear policies in directing students electronically,"* with a mean of **3.41**, a standard deviation of **0.65**, and a moderate rating.

Third: Monitoring progress and development

Arithmetic means, standard deviations, rank, and degree of responses to the items on monitoring progress and development dimension, taking into account the order of the items in descending order according to the averages, and Table (12) shows this:

Table (9): Arithmetic means, standard deviations, rank, and rating of the study members' responses to items on monitoring progress and development dimension, arranged in descending order.

#	Paragraph	Arithmetic averages	Standard deviations	Rank	Degree
21	**I follow the progress of my students in carrying out their scientific research and provide the necessary guidance**	4.27	0.58	1	High
19	**I communicate regularly with my students to solve urgent research problems.**	4.22	0.63	2	High
20	**I motivate my students electronically to adopt the scientific method in research.**	4.10	0.69	3	High
23	**I guide my students in interpreting the research results.**	4.03	0.75	4	High
16	**Enhance my students' problem-solving skills electronically.**	4.00	0.68	5	High
22	**I guide my students in analyzing research data.**	3.97	0.77	6	High
18	**I follow the progress of students in their research electronically.**	3.66	0.63	7	Medium
17	**I support students technically in using electronic technologies in their research.**	3.52	0.79	8	Medium
24	**Enhancing graduate students' critical thinking skills electronically.**	3.43	0.66	9	Medium
The arithmetic mean of the dimension as a whole		**3.91**	**0.54**	**High**	

Table (9) shows that the arithmetic averages on the items on monitoring progress and development dimension ranged between (3.43 – 4.27), with a high rating on the items. As for the dimension as a whole, it had an arithmetic mean (3.91), a standard deviation (0.54), and a moderate to high rating on the items. It ranked first on dimension (21), which states: "I follow the progress of my students in carrying out their scientific research and providing the necessary guidance," with a mean of (4.27), a standard deviation of (0.58), and a high rating. This was followed by paragraph (19), which states: "I communicate continuously with my students to solve urgent research problems." With an arithmetic mean (4.22), a standard deviation (0.63) and a high rating. In the penultimate place came Paragraph (17), which states: " **I support students technically in using electronic technologies in their**

scientific research With a mean (3.52), standard deviation (0.79) and an average rating. As for the last place, paragraph (24) came, which states: "I enhance the skills of graduate students in critical thinking electronically." With a mean (3.43) and standard deviation (0.66).) with a moderate degree of appreciation.

Fourth: Encouraging participation and communication

Arithmetic means, standard deviations, rank, and degree of responses to items on the dimension of encouraging participation and communication, taking into account the order of the items in descending order according to the averages, and Table (10) shows this:

Table (10): Arithmetic means, standard deviations, rank, and degree of appreciation for the study members' responses to items on the dimension of encouraging participation and communication, arranged in descending order.

#	Paragraph	Arithmetic averages	Standard deviations	Rank	Degree
26	I motivate students to share the results of their scientific research with the scientific community.	4.31	0.58	1	High
27	I provide advice to students individually and according to their research needs and time.	4.24	0.63	2	High
25	I motivate students to share the results of their scientific research with their colleagues.	3.69	0.82	3	High
28	I encourage students to participate in electronic academic forums to discuss the results of their research.	3.66	0.75	4	Medium
29	I guide students in using academic social media to share the results of their research and communicate with colleagues and the scientific community,	3.59	0.77	5	Medium
Arithmetic mean For the dimension as a whole		**3.90**	**0.61**	**High**	

Table (11) shows that the arithmetic means for the items within the "Encouraging Participation and Communication" dimension ranged between **3.59 and 4.31**, indicating a moderate to high rating across the items. For the dimension as a whole, the arithmetic mean was **3.90**, with a standard deviation of **0.61**, reflecting a high level of appreciation.

The highest-rated item was **Item (26)**: *"I motivate students to share the results of their scientific research with the scientific community,"* with a mean of **4.31**, a standard deviation of **0.58**, and a high degree of appreciation.

This was followed by **Item (27)**: *"I provide advice to students individually and according to their research needs and appropriate times,"* which had a mean of **4.24**, a standard deviation of **0.63**, and a high rating.

In the penultimate position was **Item (28)**: *"I encourage students to participate in electronic academic forums to discuss the results of their research,"* with a mean of **3.66**, a standard deviation of **0.75**, and a moderate rating.

Lastly, **Item (29)** came in last place: *"I guide students in using academic social media to share the results of their research and communicate with colleagues and the scientific community,"* with a mean of **3.59**, a standard deviation of **0.77**, and a moderate rating.In a related context, interviews with participants revealed a strong enthusiasm for integrating technology into the academic supervision

of graduate students. This enthusiasm underscores a clear and positive trend towards adopting technology in academic supervision, as many faculty members recognize its role in enhancing the quality of the supervisory process and fostering improved communication with students.

This indicates that the various aspects of electronic supervision, such as encouraging use, monitoring progress, encouraging participation, and directing and planning, are all well implemented and organized.

This result can be attributed to the fact that Palestinian universities have invested in advanced technologies and infrastructure that facilitate the electronic academic supervision process and make it more effective.

Electronic academic supervision also provides greater flexibility and suitability for students and supervisors, allowing them to communicate and interact at any time and from anywhere. Students and supervisors can easily access diverse and updated information sources via the Internet, which enhances the quality of supervision and academic outcomes.

In addition, universities may have provided adequate training and support to faculty members and students on how to use electronic academic supervision platforms effectively, which increases their confidence and competence in using this technology.

Finally, electronic academic supervision may provide means to document and monitor students' progress periodically and accurately, which has helped supervisors provide accurate and effective guidance and enhance continuous interaction between students and supervisors.

Therefore, these factors combined have contributed to improving the electronic academic supervision experience and made it highly appreciated by faculty members in Palestinian universities.

This confirms what Al-Omari (2023) pointed out, that the use of technology in academic supervision contributes significantly to improving the quality of the supervisory process and enhancing communication between supervisors and students, and that investing in an advanced technical infrastructure facilitates electronic academic supervision and makes it more effective.

The researcher attributes this result to the possibility that there will be strong support from university administrations to adopt electronic academic supervision techniques, which contributes to creating an educational environment that encourages innovation and the use of modern technology. Also, there could be an increasing trend towards distance education as a result of the Corona pandemic, which prompted universities to strengthen their capabilities in this field and develop effective electronic platforms for academic supervision. Furthermore, there could be increased international collaboration with universities and other research institutions, requiring the use of electronic academic supervision to communicate and coordinate between supervisors and students across borders. Also, improving digital technology skills among faculty members can be a contributing factor in achieving greater effectiveness in electronic academic supervision, which has contributed to achieving a high evaluation by faculty members in Palestinian universities.

The result of the current study is consistent with the result of the study by Saltati (2017) in emphasizing the importance of using technology in enhancing interaction between supervisors and students and improving the quality of academic supervision. With the study of Al-Qahtani (2019) in its high appreciation of the importance of digital communication in academic supervision and providing the necessary support to students. This is consistent with the results of the current study, which showed a high appreciation for the dimensions related to electronic academic supervision. The result of the current study also agrees with the result of the Yende (2021) study, which emphasized the necessity of intensive training of students in scientific research and academic writing skills, and stressed the importance of improving interaction and communication between students and supervisors, which is consistent with the results of the current study, which showed a degree High appreciation for encouraging participation and communication. And with the study of Meyers (2020),

which showed that there was a change in the frequency and means of supervision of master's and doctoral students due to the pandemic, as supervisors preferred to rely on video conference tools and "remote" interaction, which is consistent with the dimension of encouraging electronic use in the current study.

The current study differs from the study of Al-Qahtani (2019), which focuses on the Saudi environment in particular, which may reflect cultural influences that differ from the environment covered by the current study. With the study of Yende (2021) conducted in the African context, which may indicate differences in infrastructure and technical resources compared to the context covered by the current study. It also disagreed with the study of Meyers (2020), which focused on the effects of the pandemic on academic supervision, which highlights variation in special circumstances that may not be covered in the same way in the current study.

-Results related to the second question, which stated: " Are there differences in the arithmetic averages in the responses of faculty members in Palestinian universities towards the practice of electronic academic supervision of graduate students in Palestinian universities from the point of view of faculty members due to study variables (gender and years of experience)? **؟"**

To answer the question, the arithmetic means and standard deviations of the study members' estimates of the practice of electronic academic supervision of graduate students in Palestinian universities were extracted according to the variables (gender and years of experience), and Table (12) shows the results:

Table (18) **Arithmetic means and standard deviations on the practice of electronic academic supervision of graduate students in Palestinian universities from the point of view of faculty members according to the variables of the study**

Variables	Categories	Statistician	ENCOURAGING ELECTRONIC USE	DIRECTING AND PLANNING	MONITORING PROGRESS AND DEVELOPMENT	ENCOURAGING PARTICIPATION AND COMMUNICATION	Overall score for the instrument
Gender	male	Arithmetic mean	3.98	3.95	4.05	3.85	3.96
		Standard deviation	0.53	0.44	0.46	0.49	0.48
	feminine	Arithmetic mean	4.03	3.84	3.77	3.94	3.90
		Standard deviation	0.45	0.61	0.59	0.23	0.47
Years of experience	Less than 5 years	Arithmetic mean	4.12	3.88	3.88	3.84	3.93
		Standard deviation	0.44	0.67	0.61	0.33	0.51
	5-10 years	Arithmetic mean	4.01	3.93	3.90	4.08	3.98
		Standard deviation	0.40	0.55	0.39	0.44	0.45
	10 years and more	Arithmetic mean	3.87	3.86	3.96	3.79	3.87
		Standard deviation	0.37	0.51	0.52	0.46	0.47
Grand total		**Arithmetic mean**	**4.00**	**3.89**	**3.91**	**3.90**	**3.93**
		Standard deviation	**0.44**	**0.52**	**0.54**	**0.61**	**0.42**

Table (12) shows that there are apparent differences between the values of the arithmetic averages of the study members' estimates on each of the dimensions and the total score of the tool for practicing electronic academic supervision of graduate students in Palestinian universities from the point of view of the faculty members according to the variables of the study, and to demonstrate the extent of statistical significance of the differences between Average values: The multivariate analysis of variance (MANOVA) test was used on each of the dimensions and the total score of the tool, as follows:

First: the gender variable

Table (13)**Multivariate analysis of variance (MANOVA): Differences between the arithmetic means of the study members' estimates about the practice of electronic academic supervision of graduate students in universities according to the variable gender.**

Source of variance/variable	Dimensions	Sum of squares	grades Freedom	average Squares	F value	level Connotation
Gender Hotelling's =0.084 F =4.344, Say =0.002	**Encouraging electronic use**	.1170	1	.1170	.8170	.3670
	Directing and planning	.0550	1	.0550	.3360	.5630
	Monitoring progress and development	1.692	1	1.692	7.849	*0.006
	Encouraging participation and communication	.6560	1	.6560	3.507	.0630
	Overall score for the instrument	.2560	1	.2560	2.162	.1430
Error	**Encouraging electronic use**	30.134	210	.1430		
	Directing and planning	34.615	210	.1650		
	Monitoring progress and development	45.270	210	.2160		
	Encouraging participation and communication	39.299	210	.1870		
	Overall score for the instrument	24.833	210	.1180		
Adjusted total	**Encouraging electronic use**	33.608	217			
	Directing and planning	35.850	217			
	Monitoring progress and development	48.197	217			
	Encouraging participation and communication	43.825	217			
	Overall score for the instrument	25.915	217			

***A function at the significance level (=0.05).a).**

Table (13) shows that there are no statistically significant differences at the level (=0.05).a) between the averages of the study individuals' responses on all dimensions attributed to the gender variable except for the dimension (Monitoring progress and development), as the values of the (f) test on each of the dimensions (encouraging electronic use, Directing and planning, encouraging participation and communication) reached between (0.336 - 3.507).) and the significance level is greater than (=0.05).aThese values are not statistically significant at (=0.05).a). The value of the test (f) on the dimension of monitoring progress and development was (7.849) and at the level of significance (0.006), and this value is considered significant at the level of (0.05 =a), where the differences were in favor of males with a higher mean than females on the dimension.

It also shows that there are no statistically significant differences on the total score of the tool due to the gender variable, as the value of the (f) test on the total score was (2.162) at the significance level (0.143), and this value is considered not statistically significant at the significance level (=0.05).a).

This could be explained because male faculty members may be more active or have better abilities in using technology to monitor students' progress. They may also have more time or a higher tendency to use technology tools to monitor and evaluate student performance.

One of the studies that supports this result is the study indicated by Al- Al-Moeed (2022), which indicated that male faculty members can show better performance in scientific and technical supervisory roles.

Years of experience

Table (14): Multivariate Analysis of Variance (MANOVA) Differences between the arithmetic means of the study members' estimates about the practice of electronic academic supervision of graduate students in universities according to the variable Years of experience

Source of variance/variable	Dimensions	Sum of squares	grades Freedom	average Squares	F value	level Connotation
Years of experience Wilks 'Lambda=0.865 F =3.891, Say =0,000	**Encouraging electronic use**	1.720	2	.8600	5.994	*0.003
	Directing and planning	.3330	2	.1670	1.011	.3650
	Monitoring progress and development	.1100	2	.0550	.2540	.7760
	Encouraging participation and communication	2.040	2	1.020	5.451	*0.005
	Overall score for the instrument	.4140	2	.2070	1.752	.1760
Error	**Encouraging electronic use**	30.134	210	.1430		
	Directing and planning	34.615	210	.1650		
	Monitoring progress and development	45.270	210	.2160		
	Encouraging participation and communication	39.299	210	.1870		
	Overall score for the instrument	24.833	210	.1180		
Adjusted total	**Encouraging electronic use**	33.608	217			
	Directing and planning	35.850	217			
	Monitoring progress and development	48.197	217			
	Encouraging participation and communication	43.825	217			
	Overall score for the instrument	25.915	217			

***A function at the significance level (=0.05).a).**

The table shows that there are no statistically significant differences at the level (=0.05).a) between the arithmetic averages of the study members' responses on the two dimensions (Directing and planning, and monitoring progress and development) attributed to the academic degree variable, with the exception of the dimension (encouraging electronic use), as the values of the (f) test for it were between (0.254 - 1.011) and the level of significance is greater than (0.05). =aThese values are not statistically significant at (=0.05).a). It also shows that there are statistically significant differences at (=0.05).a) between the averages of the study members' responses on the two dimensions (encouraging electronic use and encouraging participation and communication), where the value of the test (f) for the dimension of encouraging electronic use was (5.994) at the level of significance (0.003), and the value of the test (f) for the dimension of encouraging participation and

communication was (5.451) with a significance level of (0.005), and this value is considered significant at (=0.05).a). It also shows that there are no statistically significant differences on the total score of the tool due to the years of experience variable, as the value of the (f) test on the total score was (1.752) at the significance level (0.176), and this value is considered not statistically significant at the significance level (=0.05).a).

To detect statistically significant differences in the two dimensions (encouraging electronic use, encouraging participation and communication) according to the years of experience variable, the Scheffe test was used for dimensional comparisons, and Table (15) shows this:

Table (15): Results of post-hoc comparisons using the Scheffe test according to differences in years of experience

Dimension of encouraging electronic use	Years of experience	Arithmetic mean	Less than 5 years	5-10 years	10 years and more
	Less than 5 years	4.12	-	.497	*0.011
	5-10 years	4.01		-	.145
	10 years and more	3.87			-
The dimension of encouraging participation and communication	Less than 5 years	3.84	-	.836	.363
	5-10 years	4.08		-	*0.035
	10 years and more	3.79			-

*A function at the significance level (=0.05).a).

Table (15) shows that there are statistically significant differences at the level of (=0.05).a) between the arithmetic means of the study members' estimates on the two dimensions (encouraging electronic use, encouraging participation and communication) due to the years of experience variable. The differences were between years of experience (less than 5 years) on the one hand and years of experience (10 years or more) on the other hand, and the differences were in favor of (less than 5 years) with a higher arithmetic average on the dimension of encouraging electronic use. There were also differences between years of experience (5-10 years) on the one hand and (10 years or more) on the other hand, and the differences were in favor of (5-10 years) with a higher arithmetic average on the dimension of encouraging participation and communication.

The results also indicated that there were no statistically significant differences in the total score of the tool attributable to the years of experience variable, while there were statistically significant differences in the study members' estimates on the two dimensions (encouraging electronic use and encouraging participation and communication) attributable to the years of experience variable. The differences came between years of experience (less than 5 years) on the one hand and years of experience (10 years or more) on the other hand, and the differences were in favor of (less than 5 years). There were also differences between years of experience (5-10 years) on the one hand and (10 years or more) on the other hand, and the differences were in favor of (5-10 years). This result can be attributed to the fact that new or moderately experienced faculty members show greater interaction with electronic academic supervision due to their recent training and desire for innovation, while faculty members with long experience may prefer traditional methods.

The result of this study is consistent with the result of Al-Omari's study (2023), which indicated that there are no statistically significant differences between the averages of faculty members' responses due to differences in academic degree and experience in supervision. It is also consistent with the finding of Al-Moeed (2022): who indicated that male faculty members may show better performance in scientific and technical supervisory roles, which enhances our understanding of male preference in the fields of technology and electronic academic supervision. The results of the current study differ from the results of Al-Jaji's study (2023) regarding the academic quality of supervision, as the current study indicated that there are no statistically significant differences between the different dimensions of academic supervision, while Al-Jaji's study (2023) indicated that there are disparities in the quality of supervision based on various dimensions such as Flexibility of communication and clarity of instructions.

Recommendations:

1. Continuing and enhancing electronic academic supervision and providing more resources and support to improve its quality and ensure that the largest possible number of students and faculty members benefit from it.
2. Providing training programs directed at females to enhance their skills in monitoring progress and development in electronic academic supervision, which contributes to reducing the gender gap in this dimension.
3. Providing continuous support to faculty members with long experience (10 years or more) by updating their technical skills and encouraging them to participate in modern training programs to enhance their use of electronic technologies and effective participation in electronic academic supervision.

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